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ART. I.—THE MISSISSIPPI AND ITS MOUTH.

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My attention has been lately directed to a pamphlet from the *Journal of the Franklin Institute*, Philadelphia, entitled: "Memorial of Brevet Brigadier General B. S. Roberts, on a Plan for Reclaiming the Waste Lands of the Lower Mississippi," dated Washington, D. C., January, 1866, and directed to the Hon. E. M. Stanton, Secretary of War. The pamphlet coming from the *Journal of the Franklin Institute*, I have thought it should not pass without notice, for errors, uncontroverted, often pass for truths with the ignorant.

In order to understand the plan by which General Roberts proposes to reclaim the waste lands of the Lower Mississippi bottoms, I will quote his own words:

"I here propose briefly to suggest my undoubting conviction that a new plan for diking the Lower Mississippi, in connection with a system of waste-wiers and gates, so constructed at proper distances in the levees of the river that during all the seasons of great floods vast volumes of the waters of the river, thick with delta-making material, borne down in the Missouri and other great rivers of the Northwest, may be turned off to overflow the extensive swamps and morasses and fill the lagoons and lakes abounding between the table lands and the proper alluvial bottoms of the Lower Mississippi basin, depositing in them and creating from these waters new and rich delta lands, and by degrees raising them to the level of the stream when in flood. In this manner, it is proposed to redeem them from their present waste, turn them to bottoms exuberant in richness, for the cultivation of cotton and sugar, relieve the country from their fatal malarias, and create sanitary and productive soil where morasses, swamps, stagnant lagoons, and lakes are the fruitful causes of the contagions and pestilences of this region."

To give a clearer idea of the magnitude of the proposed plan, I quote again :

"The cost of such waste-wiers, or aprons, at five hundred, or even a thousand points, along the length of the levees from Tennessee to the mouth of the river, would be an insignificant figure above the cost of the earth levees as now constructed. They would, in fact, form only another plan of diking, by using at intervals timber instead of earth, built at a less height, riveted with plank aprons, over which the water, with its delta-making material, will flow into the low swamps and morasses during all seasons of flood."

It will be perceived that the writer of the pamphlet proposes to carry out his improvement by a regular chain of dikes, or levees, from the mouth of the Arkansas, down both banks of the Mississippi to its mouth, with from five hundred to a thousand waste-wiers and gates, riveted with plank aprons, for the purpose of flooding the adjacent lands along the whole length of the river through the States of Mississippi and Louisiana, with what he considers the surplus water of the river during the time of floods, thus finally elevating the whole surface of the delta, covering it with a rich alluvial soil, improving the sanitary condition of its atmosphere, and preparing it "for the growth and development of man under the Divine decree, to multiply and replenish the earth."

If the object of the proposed plan is simply to let the river, in times of flood, overflow the adjacent lands, so as to fill up the ponds, lakes, and lagoons, and finally, to elevate the whole delta, why expend so much money in making levees, and waste-wiers with plank aprons? Why not let the levees get out of repair, and let the river do its own work and make passages for its waters to overflow the adjacent lands? Where is the necessity for an expenditure which, the writer of the pamphlet seems to intimate, may be millions, or for surveying the whole adjacent country, ponds, lakes, and lagoons, when the flood water can find its own level, filling the lowest bottoms first, and gradually those that are higher? Though the writer seems to think that the river, in its present condition, produces very great and rapid changes near the mouth, he appears to have no idea of any definite time at which his proposed plan of improvement would be complete, for he says :

"Compared to the benefits to the country, it would be economy should they cost millions; for in all time they would be creating new and rich lands, and precipitating the time when, in God's unchanging creative laws, to prepare the earth for the growth and development of man, under the Divine decree, to multiply and replenish the earth, 'the mountains shall be made low, and the valleys exalted.'"

In the ordinary acceptation of the phrase, "in all time," means to the end of the world, and whether that may be one thousand, or twenty thousand years, nobody knows. I can only say it would be a long time to speculate on the returns of a present enormous outlay.

All that has come down to us from history shows that the opera-

tion of such a plan as that proposed by General Roberts would be exceedingly slow. It is well known that the great mass of the detritus brought down by the current of a river is pushed or forced along the bottom of the bed by the weight and velocity of water above it, and that the lighter substances only, and that in the smallest quantities, rise to the surface. Hence it is that the inundations of the Nile have added so little to the elevation of the delta for the last three thousand years. Neither has the delta of the Nile made any great advance into the Mediterranean during all that period. Pelusium, now called Tineh, about three thousand years old, and Alexandria, about twenty-two hundred years old, occupy the same relative positions with respect to the sea they did then. There is reason for this too.

No doubt, if the levees were not in existence, and the river was left to overflow the land in every direction, the alluvial matter brought down by the floods would gradually elevate the bottom lands. Even then, the operation would be slow, and the effect proposed to be secured by General Roberts' plan would never be reached in our time, nor in our generation. As the river has made a channel for itself, however defective that channel may be, and as it is confined, in its ordinary stage of water, between well defined banks, and as a considerable portion of those bottom lands are already inhabited and under cultivation, such a general inundation of the river is out of the question. As to the plan proposed by General Roberts to elevate the bottom lands of the delta of the Mississippi, fill up the ponds, lakes, and lagoons, and creating new lands for future generations, if attempted to be carried out, it would do more mischief to the present generation, independent of the enormous expense attending its execution, than the promised benefits resulting from it at some remote period in the future could ever repay. The quantity of alluvial matter that would be carried by the surface water of the river in time of flood over the plank aprons of those proposed waste-wiers would be so small and, consequently, its operation would be so slow, that it would be a work, not of years, but of centuries.

The inducements held out in favor of the proposed plan are altogether fallacious. It is said that it would enrich the lands. The lands of the Mississippi delta are rich enough already for any use to which man can put them, and judicious cultivation will make them more so. It is said that filling up the marshes, morasses, swamps, ponds, lakes, and lagoons, will give the people new lands. Those lands are already there, and only require a judicious system of drainage to render them available either as arable, or pasture lands. It is also said that it will improve the sanitary condition of the country. If the proposed plan could ever be carried out, and if, in the far off future, however remote that might be, the marshes, swamps, morasses, ponds, lakes, and lagoons were finally filled up, and the bottom lands generally elevated, no doubt the sanitary condition of the whole delta would be improved. But as long as the plan was in the process of execution, as long as the so-called

surplus water of the Mississippi floods was allowed to overflow the lower bottoms, filling the marshes, morasses, swamps, etc., with water to be stagnant, and sweltering in the summer's sun, so long would the very reverse be the case.

In referring to the system adopted in Holland for the improvement of waste lands as corroborative of his proposed plan, General Roberts must have done so without reflection. This system is the very reverse of his. They never inundate their lands, except indeed, in time of war, to impede the advance of an enemy. Their whole engineering skill is directed, in the first place, to prevent inundations ; and in the second, to drain the lands. Some of their lands are lower than the surface of the sea, and lower than the surface of the rivers at low water. The lands are drained by locks and by machinery.

Instead of inundating the waste lands of the Mississippi delta with the surface water of the river in time of flood, let all the water belonging to the river be confined within a straighter channel of proper cross section, which will lower the surface of the river, and a general system of drainage for the waste lands be adopted, and those lands now considered waste will be turned into lands as rich as the heart of the farmer can desire, whether for cotton, corn, rice, or sugar, or the raising of stock of all kinds, while the sanitary condition of the atmosphere will be considerably improved, and, what I consider of most importance to the welfare of a large portion of the country, the navigation of the river Mississippi will be improved.

My principal objection to the proposed plan, and indeed my chief reason for noticing it, is that, in my opinion, the attempt to carry it out would utterly destroy the navigation of the Mississippi. The author of the pamphlet seems to imply that his plan for reclaiming the waste lands of the Lower Mississippi bottoms will also tend to improve the navigation of the river.

In arguing that Congress has the constitutional right to appropriate the public money for reclaiming the waste lands, he uses the following language :

"At all events, the right of the Government to improve the navigation of rivers that flow into the sea is conceded ; and under this concession, I shall proceed to show that the plan I propose goes directly to this point, and is one of the most economical and practical the Government can adopt."

In order to show how this improvement would take place, he says that, in the present condition of the river, immense quantities of sedimentary matter, rich fertilizing material, is carried down to the mouth and there, meeting the Gulf tides, it is deposited and forms shoals, and bars, and islands, which, acting as dams to the river, impede the free discharge of its waters, and cause the bed of the river to rise until the surface water is raised above the banks and the cultivated lands are overflowed. But he says that his proposed plan would carry out of the river into the lower bottoms, through his waste-wiers and gates, so much of the delta-making material

that fewer islands and bars would be created at the mouth. It is evident from the character of his reasoning, that his ideas are entirely at variance with the principles of hydraulics. It is a well known fact, that the great mass of earthy matter brought down from the uplands by the current of a river is pushed, or forced along the bottom of the bed by the scouring power of the current, which is always in proportion to the weight and velocity of the water pressing upon the bottom, and that the part that rises near the surface consists only of the finer particles of sediment, and these in so small a quantity as to be comparatively inappreciable. Consequently, the quantity of sediment that would pass over the plank aprons of his waste-wiers and gates could scarcely be said to touch the great mass of earthy matter that is constantly being pushed along the bottom of the Mississippi river. It is also a well known fact, that the navigation of a river can never be improved, and the height of the surface of the river lowered, by diminishing the quantity of the water in the channel. Improving the navigable capacity of a river is generally understood to mean producing a greater depth of water in the channel. How, then, can a plan which proposes to open five hundred, or a thousand waste-wiers, and gates, for the purpose of drawing off the water from the river, be said to improve the navigation, when it must necessarily be decreasing instead of increasing the depth of water in the channel? A man might, as consistently with reason, tell me, after he had poured out half of the water of a full cup, that the water in the cup was deeper then than it was when the cup was full.

What is a river? It is an aggregate volume of water flowing from the higher lands in the interior of a country to the sea. The motion of water in a river is due to the combined influence of the force of gravity and the retarding forces, and it would flow in a straight line if not prevented by obstacles, natural, accidental, or artificial—natural, such as a hill, or a mass of rocks, which may give a circuitous direction to its course; accidental, such as the falling of a tree, which may have a somewhat similar effect; artificial, such as man may make for any especial purpose of his own. But as the law of nature, that is, God's law, is the only law that is perfect, the nearer the channel of a river approximates to a straight line, the nearer it approaches perfection. All other things being equal, the navigable depth of the channel of a river depends upon the quantity of water flowing through it; if you increase the quantity, you increase the depth; if you decrease the quantity, you decrease the depth.

The water of a navigable river may, in some respects, be considered as its life blood. You cannot abstract it from the main channel in any quantity, without proportionably impairing its healthy condition. The idea of improving the navigable condition of a river by drawing off its water, can find its parallel nowhere, except, indeed, in the medical practice of Doctor Sangrado, as described in that inimitable work, the "Adventures of Gil Blas," by LeSage. The Doctor's practice consisted chiefly in bleeding. If the

patient was not better after the first bleeding, he bled him a second time, and again a third time. He seldom had to repeat the bleeding oftener, for the patient generally sank under the exhausting process. But when he was dead, the Doctor, firm in his theory, always declared that if he could only have bled him a little more, he would have recovered.

The present defective condition of the navigation of the Mississippi is the result of too much bleeding already. Why is there a depth of from eighty to a hundred feet in the deepest part of the channel in front of New Orleans, and only from twelve, to fifteen feet at the mouths of the Passes? Because the whole force of the stream is concentrated in one channel at New Orleans, and is fully able to scour its bed and maintain its depth, but, before it reaches the mouths of the Passes, it is divided and distributed through so many outlets, which, from their diminished volume, are no longer able to push along the heavy earthy matter brought from above, but deposit it about their mouths, forming those bars and islands mentioned in the pamphlet.

The Mississippi river, no doubt, like the Nile, has been thousands of years filling up the great tidal basin which, in the early ages of the world, occupied the place where the delta now is. The delta, once formed, gradually became more and more elevated by the overflows of the river and the yearly accretion of vegetable matter, and also gradually advanced towards the Gulf. The close approach of the front of the delta to the coast stream will prevent any great advance in the future, and an increase of elevation of the surface of the river, while the growth of the population, and consequent greater demand for land, will render it necessary to put a stop to overflows from the river, and to adopt some general system of drainage to render the marshes, morasses, and swamps, ponds, lakes, and lagoons, forming the so-called waste lands, available for agriculture or pasture.

The defective navigation of the Mississippi river results from the defective condition of the channel, and the waters being wasted through outlets and spread over extensive surfaces, instead of being concentrated in one channel of proper breadth. The channel is defective because it is too circuitous. Every bend in the channel of a river is a defect, because checking the velocity of the current by its greater resistance and diminishing its scouring power, it leads to the creation of shoals both above and below, thus destroying the uniformity of the depth and the velocity of the water. Besides, the line of current, instead of being in the middle of the channel, is pressed against the concave bank, which the stream is constantly wearing away, until at last it breaks through the a tacked bank, follows the shortest way in which it has the greatest relative fall, and thus regulates itself. Outlets are still more injurious to the navigation of a river. Whatever amount of water is drawn off by the outlet, proportionally diminishes the scouring power, so that, no longer able to push along the heavier materials which it has brought thus far, it deposits them on the bottom, thus gradually

raising the bed of the river, diminishing its depth and retarding the discharge of the water in time of flood, which is detrimental to drainage. There can be no clearer proof of the injury caused by an outlet to the navigation of a river than the fact that the depth of water below an outlet is always less than that above, and that the loss of depth is always in proportion to the quantity that escapes through the outlet. If the outlet is closed, the same depth will be restored below that is to be found above.

Ancient history informs us that when Cyrus was advancing to cross the river Gyndes, which could be passed only in boats, one of the sacred white horses, plunged into the stream, was carried away by the force of the current and drowned. Angry at the loss of the horse, and desirous, perhaps, of making the river fordable in the future, he made a vow that he would make the stream so insignificant that women thereafter should be able to cross it without so much as wetting their knees. So he set his men to work and had one hundred and eighty trenches dug on either side of the river to let the water out of the channel, until the river was made fordable to the extent of his vow. When he laid siege to Babylon afterwards, he followed the same plan to get an entrance to the city. The Euphrates, a deep river, passed through it, but the entrance, and the passage out, were secured from any attack by boats. He caused outlets to be made on either side of the river, to drain the water into the neighboring low grounds, which were all to be opened simultaneously when the time came. On the evening of the day spoken of in the Book of Daniel as the first of Belshazzar, the outlets were opened, and after midnight, the water in the river had sunk so low, that in marching into the city by the bed of the river, the water did not reach the hips of the Persian soldiers. After Cyrus had taken the city, and secured it for himself, he had the outlets closed, and the river was restored to its former depth. Thus it would appear that about twenty-four hundred years ago, there were men who understood the principles of hydraulics better than some now living near the close of the nineteenth century of the Christian era.

The very nature of the causes that render the navigation of the Mississippi defective, point out the remedy. If the circuitous character of the channel, by presenting greater resistance in some parts than in others to the downward flow of the current, has a tendency to destroy the uniformity of its velocity and depth, thereby subjecting the whole channel of the river to irregularity, and constant change, the obvious remedy must be to straighten the channel, or where that cannot be done completely, to make it as nearly straight as circumstances will admit. Even bends tolerably abrupt may be considerably modified, and improved, by the erection of works calculated to protect the concave banks from abrasion, and to force the line of current in a straighter direction.

The waste of water through the lateral outlets, also suggests its remedy. In a well regulated river, all other things being equal, the depth of the channel depends upon the quantity of water flowing through it. If the quantity is increased, the increased weight and

velocity will deepen the channel, until its enlarged capacity corresponds with that increase. If the quantity is diminished, the weight and velocity on the bottom of the bed are diminished, and the coarser and heavier portions of the detritus settle to the bottom, and the bed rises until the decreased depth of the channel corresponds with the diminished quantity of water flowing through it. Consequently, in order to secure the greatest navigable capacity that a river can be made capable of attaining, the entire body of water belonging to it should be concentrated in one channel, of a proper cross-section, and of a judicious direction. If the river had a regular regimen, that is, if it were not subject to abrasion, and alluvion, and had a normal breadth, and depth, the cross-section would remain almost constant, and the line of current be in the middle of the bed. To bring the river to such a condition would be the only plan to drain the country, and to improve the navigation of the river.

In regulating the channel of the Mississippi, with a view to improve and enlarge its navigable capacity, a careful examination of the Passes should be made, in order to be able to decide which of them it would be most advisable to retain as the proper one. If by a proper regulation of the channel of a river towards the mouth, the upward flow of the tide can be facilitated, so that the quantity that passed up into the upper reaches of the river would be enlarged, the bed would be proportionably deepened.

There would be no difficulty whatever in improving the navigation of the Mississippi if the right means were adopted. A proper regulation of the width of the channel, from the point of commencement of the work all the way down, the removal of such of the bends as could be removed by well executed cut-offs, and the judicious modification of others, would produce greater uniformity of velocity, and consequently, greater uniformity of depth, while the proper regulation of the mouth of the river would give such an increase of weight and velocity to the current that the soft mud that chokes up the mouth would soon be swept before it into the outer waters of the coast stream, and the height of the surface of the river in time of floods be greatly lowered.

It is rather a singular fact, that out of the great number of those who are proposing plans for the improvement of the navigation of our rivers, and are ready to take contracts for the execution of the work, I do not know any who are hydraulic engineers, or who appear to be familiar with the principles of this science, or ever practiced it as a profession. One does not necessarily employ a physician to conduct a law case, or ask a lawyer to prescribe for an invalid, but for improving the navigation of the tidal compartment of a river, everybody is supposed to be especially qualified. This may account, perhaps, for the wildness and absurdity of some of the plans proposed. Some undertake to improve the navigation of a river by dredging, where the bed is composed of light sand and soft alluvial mud. The deposit of sand and mud in the mouth of a tidal river is not a matter of accident, which, once removed, might never return again. It is the necessary result of an existing cause,

and as long as that cause is permitted to remain, no matter how often the deposit is removed by the dredge, it will always return, for the waters of the river, which first laid it there, are engaged every hour of day and night in replacing it, almost as fast, if not faster, as the dredge removes it. Time and again has dredging been tried in Mobile Bay and in the Passes of the Mississippi, and never once has it been attended with success. Hundreds of thousands of dollars have been expended in such operations, and no benefit has ever been derived from them. The utter worthlessness of dredging, as a system, in the soft alluvial bottoms of large rivers, has become so palpable, that one is at a loss which to admire most, the ignorance of those who undertake such works, or the infatuation of those who employ them. There are places, no doubt, where, and circumstances under which, dredging would be useful, but the mouth of the Mississippi is not one of those places; neither do the shoals, and bars, which impair its navigation afford the circumstances which would require it. There it would be, as it always has been, time and money wasted. One thing, however, can be said in favor of dredging in such places, if it does no good to the navigation of the river, neither does it inflict any injury. This, however, cannot be said of the plan proposed in the pamphlet written by General Roberts. Instead of reclaiming the waste lands of the Mississippi bottoms, it would continue to keep them waste for centuries. Instead of improving the sanitary condition of the bottom lands of the Mississippi delta, it would render them almost uninhabitable from the miasmatic exhalations arising from the stagnant waters of the overflowed lands. While, instead of improving the navigation of the river, if attempted to be carried out, it would effectually ruin the navigation of the river by exhausting and wasting the only means by which, in its present condition, the mouth of the river can be kept open. If the destruction of the navigation of the Mississippi was the real object desired, I know of no plan of operation better calculated to effect it than the one proposed by Brevet Brigadier General B. S. Roberts to reclaim the waste lands of the Lower Mississippi.

ALBERT STEIN.

Mobile, March —, 1869.

ART. II.—BRITISH HONDURAS.

ITS HISTORY, TRADE AND NATURAL RESOURCES.

BY MR. CHIEF JUSTICE TEMPLE.

(Continued.)

The British settlers were now, for several years, permitted to pursue their occupation in peace, and no doubt they continued, as their numbers increased, to make fresh encroachments on the Spanish territory. In all their encounters with the Spaniards they had hitherto been successful, but they were at length destined to experience a severe reverse of fortune. On the 15th of September,

1779, they were suddenly and unexpectedly attacked by a powerful Spanish force, and utterly defeated, and their movable property was seized, their houses burnt, and they themselves loaded with chains and conveyed on foot to Merida, the Capital of Yucatan, from which place they were, after a little time, marched to the seacoast and shipped to Havana. When they arrived at that city, they were thrown into dungeons, where great numbers perished. In 1782, those who had survived the cruelties which had been practiced upon them, were liberated and permitted to go to Jamaica. For three or four years the settlement appeared to be broken up, but in 1783 we find it again in full vigor. In that year a definitive treaty between Great Britain and Spain was signed at Versailles. By this treaty it was agreed that His Britannic Majesty's subjects should have the right to cut and carry away logwood within certain districts therein described, between the river Hondo and Belize. The treaty required that all subjects of His Britannic Majesty, who might be dispersed upon the continent, or amongst the islands dependent upon the continent should, within eighteen months, retire within the boundaries laid down, and it also stipulated that all fortifications which the English settlers might have erected should be destroyed.

Simultaneously with the Belize settlement, a similar one had been formed on the Mosquito shore, but not for the purpose of logwood cutting. The Mosquito Indians declared that they had never been conquered by the Spaniards, and they made a formal cession of their territory to the Crown of England, at the time the Duke of Albemarle was Governor of Jamaica. The Mosquito settlers did not confine their mercantile operations to the vegetable productions of the country, they dealt in another commodity, which, if not equally creditable, was at least much more profitable. They trafficked in human flesh. Taking advantage of the wars which frequently occurred—and very likely stimulating them for their own atrocious purposes—between the Mosquito men, or Waikas, and the other Indian tribes who lived in the interior of the country, they purchased of the former their prisoners taken in battle, and not improbably of the latter, their Mosquito prisoners, for they do not appear to have been governed by any principles of honor, or honesty, and sent them to Jamaica and other places, where they were sold as slaves. Nothing more clearly shows the waning power of Spain at that time than the fact of a band of buccaneers and smugglers persisting in maintaining forcible possession of a country without any regular military force, without assistance of any kind from their own government, in defiance of the remonstrances of that State and its attempts to dislodge them. If such proceedings had taken place in the palmy days of Spain—if in the height of her military and naval renown, when subjugating the Moors, conquering Mexico and Peru, rivalling France, and holding in prison one of the most valorous of the princes of that chivalrous nation, a horde of pirates had planted their feet upon any portion of her territory, they would very soon have been hurled into the sea. But the canker worm had commenced, and Spain was fast sinking to that depth of degradation

which she has now fully reached. In 1741 the Jamaica House of Assembly passed an act which declared that Indians, who, after that time, should be imported into the island, should be free, and all sales should be null and void ; but provided that all persons who should be already seized of any Indian slaves should have power to sell or otherwise dispose of them in as full and ample manner as they might have done before the passing of that act. In the year 1776, the Superintendent and Council of the Mosquito shore passed a similar act. Up to the year 1821, a great number of these Indians, or their descendants, were slaves. In that year they presented a petition to Sir George Arthur, who was then Superintendent of Honduras, praying to be liberated. After a great deal of correspondence upon the subject, and an investigation conducted by Commissioners appointed by the British Government, it was decided that these poor creatures were legally held in bondage, but their emancipation, with compensation to their owners, was strongly recommended. This course was adopted.

But to return to the English settlers at Belize. In the year 1786, a fresh treaty was concluded between Great Britain and Spain. By this treaty, His Catholic Majesty, overflowing with sentiments of friendship and regard for His Britannic Majesty, grants to the English more extensive limits than those specified in the last treaty, for that only permitted them to cut logwood between the rivers Belize and Hondo, but this authorizes them to occupy for that purpose the country between the Belize and the Sibun ; and as a greater proof of his disposition to oblige the King of Great Britain, he grants to the English the liberty of cutting all other wood, without even excepting mahogany, as well as gathering all the fruits or produce of the earth purely natural and uncultivated, which might, besides being carried away in their natural state, become an object of utility or of commerce, whether for food or manufactures. It was agreed that nothing should be done by the English which should derogate from the right of the Spanish sovereignty, and it was also stipulated that the English should evacuate the country of the Mosquitos, and confine themselves within the prescribed limits. An Honduras author, who flourished some thirty years ago, and who, no doubt, inherited much of the spirit of the early settlers, thus quaintly remarks upon this treaty : " His Catholic Majesty thought proper to grant formally to the British the right of cutting the mahogany, as well as the logwood, but which *right* they had, many years ago, *deemed fit* to take without his permission."

In the next year, 1787, in accordance with one of the stipulations of this treaty, the settlers on the Mosquito coast evacuated that territory and came to Belize with their families, slaves, and effects, thus adding very materially to the population, power, and wealth of the Honduras settlement. For several years things went on in the usual way, the Spaniards constantly attacking the English, and the latter making bloody reprisals. At length the Spaniards were determined, by an action vigorous and sudden, to put an end to these disputes, and drive those pertinacious Anglo-Saxons from their

shores, or utterly exterminate them. With this view, on the 8th July, 1798, they assembled a large force at Campeachy, in Yucatan, and with thirteen vessels, containing two thousand men, commanded by General O'Neill, set sail for St. George's Kay, leaving three thousand men to follow in other ships. St. George's Kay is a small island to the northeast of Belize, about a mile in length, but in some places extremely narrow. This is covered with sand, or rather with very small fragments of shell, which is the material found upon all the kays scattered about the coast. Cocoanut trees grow luxuriantly from one end to the other, and it might not inappropriately be denominated the "Isle of Palms." In the early periods of the settlement, St. George's Kay was the Capital. Here were the principal houses, here were the stores, here was the seat of government, and here the vessels destined to carry to Europe mahogany, and logwood, were loaded. In more recent times it has been used as a resort for invalids, for which the purity and salubrity of the air eminently adapt it. Some half century ago a Honduras writer, who must have imbibed large draughts of the Castalian fountain, gives the following glowing description of this blissful abode :

"At some seasons St. George's Kay is frequented by the inhabitants of Belize as a watering place, at which time it appears more the habitation of a large united family than the meeting of individuals of different pursuits and distinct interests, and where, without such adventitious aids as the blaze of an assembly, or the vanity fair of a punch room, happiness is enjoyed in the *most compact form* that earth can exhibit."

From this captivating description of "compact happiness," we are led to infer that that blessed period had arrived in this oasis, "when the wolf should dwell with the lamb, and the leopard lie down with the kid," and we are put in mind of those friendly societies and small family parties which are sometimes exhibited near the National Gallery or Waterloo Bridge.

I have stated that the expedition started on the 8th of July. On the 10th it approached near to St. George's Kay. The settlers having got some intimation of the intended attack, had not been idle. Every description of boat which they had at hand was manned. On every reef and shoal a platform was placed, with a cannon upon it. The Merlin, an English sloop-of-war, happened, fortunately, to be there, and gave them assistance. When everything was prepared, the settlers, with a most heroic spirit, burnt all their houses and property upon the kay, and then poured a destructive fire into the Spanish flotilla. The battle raged two days and nights, with alternate success. The English fought with the dogged and determined spirit of their race ; but they were materially assisted by their slaves, who displayed a most extraordinary courage and resolution. After a terrific slaughter on the Spanish side, a triumphant victory remained with the English. This was the last battle. Several of the settlers had previously, in contravention of the treaty, been turned out of the northern rivers. After their victorious encounter, they not only resumed their old possessions to

the north of the Belize river, but considering the treaty to be now annulled by its violation by the Spaniards, with the knowledge and authority of their government, they seized the whole of the country to the south of that river as far as the Sarstoon, of which they have held undisturbed possession until the present day. Any claim which the Central American States may set up to that territory, on the ground that they succeeded to everything which belonged to old Spain, is simply absurd. From the year 1798, the English had shaken off the trammels of treaties and taken forcible possession of the country, independently of Spain. The Central American States did not throw off the Spanish yoke until the year 1821. Nor was the conduct of the settlers in this matter unsupported by the British Government. Their gallant behavior in defending their rights and resisting so successfully an organized, and powerful force, directed against them by the Spanish Government, gave so much satisfaction at home, that His Majesty directed the following communication, contained in a letter from the Duke of Portland to the Earl of Balcarras, dated, Whitehall, 8th February, 1799, to be made to them :

"I had great pleasure in laying before His Majesty the account you transmitted of the defeat of the Spanish flotilla in its attack upon our settlement of Honduras.

"The able and judicious conduct of Lieutenant Colonel Barrow, Captain Moss, of the Merlin sloop, the bravery of the troops and seamen under their respective commands, and the spirited exertions of the settlement in general on this occasion have been such as to receive His Majesty's approbation, which your Lordship is hereby directed to signify, through Lieutenant Colonel Barrow, together with the just sense His Majesty entertains of their gallant and meritorious conduct."

The trade of British Honduras has hitherto been confined to log-wood and mahogany ; no cultivation to any extent has been carried on for the purpose of producing other articles of commerce. When, and under what circumstances, mahogany was first introduced into Europe, it is not easy to say. Some have supposed that it was first discovered in the Island of Trinidad by the carpenter of one of Sir Walter Raleigh's vessels. It is related that the ship requiring some repairs, this officer went on shore to look for some wood for the purpose, which having found, he cut and brought on board. When he came to work it up he was surprised at its hardness and beauty; and drawing attention to it, it was soon very greatly in demand for articles of furniture. This account is scarcely to be believed. There are many articles of furniture now in existence which were manufactured in the days of Elizabeth and the Stuarts, but I do not think one can be found which is made of mahogany. Some say it was not introduced into England until about 1802-3. It is said that a Mr. Gibbons, of London, had a brother who was master of a vessel trading to the West Indies. This worthy skipper hearing that the Doctor was building a new house in King street, Covent Garden, very fraternally sent him a quantity of wood, which he had brought

in his ship as ballast. This wood was so hard that the carpenters could not work it up, and it was thrown aside as useless. But one day Mrs. Gibbons, who, it appears was a thrifty dame, and did not approve of burning candles at both ends, resolved to have a box made in which those illuminators might be safely kept and every fragment thereof carefully preserved, and she selected a piece of this rejected wood for the purpose, which turned out to be mahogany. When it was made and polished, it was so beautiful, and the Doctor was so pleased with it, that he determined to have a bureau made of the same material, in which he might deposit his fees. When the bureau was finished, it was shown to the Duchess of Buckingham, who was equally charmed with the wood, and she determined to have a case made in which she might preserve her jewels. By these quick gradations from the candle box of a citizen's wife to the jewel case of a Peereas, mahogany became known in England. This story, however, savors much of the style of that ingenious princess who managed to keep her head upon her shoulders by a series of amusing fictions.

It is hardly likely that the captain of a West India trader, laden with sugar and rum, and also much spice, would take a quantity of wood into his ship for ballast. Besides, we are informed that many years previous to the treaty of 1786, the settlers "had taken the liberty of cutting mahogany," without permission of the King of Spain.

There must have been a good market for that article in England long before 1803 or 1804, and Dr. Gibbons could not have had the honor of introducing mahogany to an admiring world. The time allowed to me will not admit of my giving a particular account of the mode of finding, cutting, and preparing the mahogany. I will merely state that the cutting commences in the month of August. In April and May, in which months the ground has become perfectly hard, from the continued dry weather the wood is carried upon trucks drawn by bullocks to the water side, and about the middle of June, when the rivers are swollen by the floods, the logs are floated down to about ten miles from the mouths of the different rivers, where they are confined by a heavy boom drawn across the stream. Here the owners select their respective logs, form them into rafts, and so float them down to the sea. The mahogany is always trucked in the middle of the night, the cattle not being able to perform such laborious work during the heat of the day. It is a picturesque and striking scene, this midnight trucking. The lowing of the oxen, the creaking of wheels, the shrill cries of the men, the resounding cracks of their whips, and the red glare of the pine torches in the midst of the dense, dark forest, produce an effect approaching to sublimity.

(To be continued.)

ART. III.—THE TENNESSEE RIVER.

*Speech of Colonel Gave at the Chattanooga Convention—How
Water Communications Should be Developed.*

Mr. President and Gentlemen of the Convention :

The improvement of the Tennessee river is a great work which not only interests each member of this honorable assemblage, and the great constituency whom it represents, but, in a great degree, it affects directly the welfare and happiness of the Southwestern States.

The subject involves political, and social considerations of the gravest character, and it is, therefore, in these respects, a theme for the statesman of the most profound erudition and political wisdom. I shall not, however, attempt to discuss the matter in its political and social bearing, but simply to lay before the convention such facts and statistics as have come to my knowledge in the exercise of my profession.

The Tennessee river is the sixth in importance, in respect to its length and capacity, among the forty principal navigable rivers on this continent. It has its source in the Virginias and Carolinas and flows through a section unsurpassed in the fertility of its soil, the extent and value of its mineral wealth and healthfulness of the climate. It has a drainage area of 55,960 square miles.

To form an accurate conception of the interests involved in the opening of the Tennessee river, and especially to appreciate fully its commercial importance, I would invite your attention for a brief time to its geographical and topographical relations.

The river flows through a region that is remarkable for the conformation of its surface to the wants and necessities of man. There are here no Alps, no Jura, interposing defiant barriers between provinces, their tops clad in perpetual snow, their sides crumbling beneath thundering avalanches, the valleys around them exposed to frequent inundations; here are no Andes with their fiery and smoking summits; no mountains groaning in the agony of earthquakes and hills reeling about like drunken men, but in this, the Appalachian region, nature is in calm repose; her rocks, so far as we can see, are the same from generation, to generation, and from the St. Lawrence to the Tennessee, twenty millions of people lay themselves down at night in calm confidence and perfect security.

Here is a variety of mountain, and valley, of hill and dale, and intermingling of the one with the other, which is most favorable to the prosperity of commerce and agriculture, and most conducive to the health and perfect development of the human race. I speak now not of any particular locality of this Appalachian region, but of the whole field, embracing the Blue Ridge, the Alleghany and Cumberland mountains of New York, Pennsylvania, Virginia, Kentucky, Tennessee, Georgia and Alabama. To understand the relation which the Tennessee river and its valley bear to this geographical and topographical division of our continent, we must glance at the country as it would be seen by an eagle in his highest flight. There would then unroll before us such a panorama as no mortal has ever seen.

Our map would be fringed on the east by the Atlantic, and west of our meridian there would be four types of earth surface—the Blue Ridge, Alleghany, and Cumberland table land being the most prominent. We should see the first two stretching like great mole hills in a northeast and southwest direction through Pennsylvania, Virginia, and running into East Tennessee and Alabama, always preserving a wonderful parallelism and uniformity in physical features. If time permitted, I might dwell on this mountain topography in connection with the

important subject of the slack water improvement of the large tributaries of the Tennessee and the feasibility of water communication with Virginia, but confining myself to the Tennessee river proper, I would continue your attention to the great slope in which it flows.

If we conceive a plain having its eastern crest upon the headwaters of the Tennessee and sloping to the northwest with a fall of 1,000 feet, and extending north to the Ohio, we would have the general drainage of the Tennessee. If there were no mountains running northeast and southwest, all the rivers in this region would flow northeast, but they are intercepted by these mountains, and compelled in the first part of their course to flow in a southwesterly direction. To this fact is due the anomalous course of the Tennessee river and its near approach to the waters of the Gulf. You will observe, also, that of all the rivers in the United States, the Tennessee is the only stream which renders water intercommunication with the Atlantic, Mississippi and Gulf slopes practicable. This view, since its advancement in my report of last year, has been indorsed by that distinguished gentleman, M. F. Maury, L. L. D. of Virginia, who in his recent report of the "Physical Survey of Virginia," fully puts forth the interests of that State in this projected southwest water.

The Tennessee river is the only stream that cuts in twain the Cumberland Mountains; this fact alone should give it great distinction, but as its varied course gives it peculiar interest, and this course is determined by the topography of the valley, and as this in turn by its geology, a just conception of the significance of the Tennessee river and its valley requires that we should have at least a superficial idea, of the geological structure, of its adjacent country.

I would, therefore, make another demand upon you imagination in asking you to conceive the earth's crust to be cut by a vertical plane passing through Chattanooga and extending from the Atlantic to the Mississippi. If it were possible to remove one-half of this crust, so we could obtain a view of our vertical plane, we should have a geological section of the country between the Atlantic and Mississippi, and consequently a key to all topography between these limits. There would be then revealed to our eyes a view of the four great divisions which geologists have assigned to the earth's crust. Only one of these divisions, the paleozoic, concerns us, and only the upper portion of this, the carboniferous, through nearly the whole length of our plane. The Paleozoic division is made up of four great sandstone formations, and the carboniferous system of rocks measuring seven miles of the thickness of the earth's crust. If we run our eye along this vertical plane, we will see these rocks first appearing a little east of the longitude of Richmond. In coming west they form these abrupt undulations which give Virginia her mountains and valleys. In approaching Tennessee and Kentucky these undulations become longer and more majestic in their sweep until they reach the longitude of Chattanooga, where these strata are horizontal, and spread out in broad plateau of the Cumberland table land. Going west, this system of rocks gradually declines, and finally dives beneath the surface of the country in northern Mississippi, to reappear hundreds of miles west of the Mississippi river.

Standing upon the summit of Lookout Mountain we may regard ourselves at the head of a geological stairway, the lowest step being in eastern Virginia. As we look upon the Tennessee river and then upon our imaginary plain, we shall see that it flows over the lowest members of the carboniferous rocks, and without making any qualifications of the statement that would be required by a geologist, we may, for our purpose, consider this as the geological position of the bed of the Tennessee river from Knoxville to Eastport, Mississippi. In this connection, you will observe a most important point bearing upon the future mineral development of this country, viz: That the surface of the river at low water is from 100 to 900 feet below the coal measures, while in England these lie far beneath the surface of the earth. This fact alone, the consequent cheapness of coal-mining, to say nothing of the abundance of iron, timber and limestone, affords ground for the most sanguine expectation of the coming manufactures of the Tennessee Valley.*

But leaving these general considerations, I desire to present a few facts relating to the present condition of navigation of the Tennessee river. The principal obstructions to navigation are included between Chattanooga and Waterloo, 242

*For many of my geological facts I am indebted to Professor Safford.

miles below. To form an idea of the comparative difficulties of this portion of the river, I may say that the fall from Chattanooga to Bridgeport, a distance of sixty miles, is twenty-eight feet; from Bridgeport to Brown's Ferry, twelve miles below Decatur, and 125 miles below Bridgeport, the fall is twenty-one feet; from Brown's Ferry to Elk river, eleven miles, twenty-six feet. Elk river to head of Muscle Shoals, fifteen miles, three feet; head of Muscle Shoals to Bainbridge, seventeen miles, eighty-five feet; Bainbridge to Florence, seven miles, twenty-three feet; Florence to head of Colbert Shoals, eleven miles, three feet, head of Colbert Shoals to Waterloo, six miles, twenty-one feet, a total fall of a little over 200 feet in 242 miles, more than one-half of which is concentrated at Big and Little Muscle Shoals, in a distance of only twenty-two miles. Now, if with this idea of the relative magnitude of these shoals, and the other obstructions, is mentioned the fact, that during only from three to four weeks in the year can boats pass over Muscle and Elk River Shoals, and then with danger, while steamboats of only three feet draft can navigate from the head of Elk River Shoals to Knoxville, 368 miles above, nine months in the year, the shoals in the vicinity of Chattanooga, cease to be an obstruction in this point of view.

Nor is navigation limited to Knoxville. For six months in the year, boats can ascend 125 miles above Knoxville on the Holston river, 100 miles up the Little Tennessee, 150 miles up the Clinch, 75 up the Hiwassee, 125 up the French Broad, and 50 up Powell's River, making 625 miles of tributary navigation.

If to this be added the first 368 miles, there are 993 miles of six months navigation and 368 of nine months, with only three weeks of precarious outlet at Muscle Shoals to the lower Tennessee and Mississippi Valleys, from a region whose drainage into the Tennessee embraces 15,000 square miles.

These figures include only the extent of natural navigation. But these six tributaries having narrow or no bottom lands, and walled in by precipitous bluffs, would admit of easy slack water improvement, their fall being no greater than that of the Tennessee at Muscle Shoals.

By this means the navigation on the Holston could be extended 60 miles to Bristol and Virginia Salt Works, 160 miles above Knoxville; on the Clinch 50 miles above natural navigation, or 200 miles above its mouth; on the Hiwassee, 100 additional miles, or 75 miles above its mouth; on the French Broad 100 additional miles, which would extend its navigation to Ashville, North Carolina, its present head of navigation being Dandridge. On Powell's River 50 additional miles. Total slack water navigation in the mountains, 360 miles; making a total navigation above Muscle Shoals of nearly 1,000 miles.

All this shows that this valley is throttled at Muscle Shoals; that what should be one of the main commercial arteries of the South is ligated at that point, producing stagnation in business, and keeping dormant, forces in nature and energies in man, without whose development and full action, the South must always remain a second-rate agricultural community, furnishing raw material to enrich other sections, while she remains dependent upon others for the benefits derived from manufactures and the arts.

The South can become both a great agricultural and manufacturing district, for she has a fertile soil and abundance of valuable minerals. To develop these two resources thoroughly and to compete with other sections of the country, she must have every facility for transporting her produce to market; the Tennessee must play the same part to the Southern States that the Ohio river sustains to the States of Ohio and Pennsylvania. There can be no Southern Pittsburg until there is a Southern Ohio river.

In Pittsburg and its vicinity, four-fifths of the ore manufactured into iron is transported thither from its bed near Lake Superior at a cost of \$13 per ton. This ore is first carried by rail twelve miles to the lake, and then transported by water to Cleveland, Ohio, whence it is taken by rail to Pittsburg.

In the Tennessee Valley, the best quality of iron can be had for the simple cost of mining, within five or ten miles, at most, of the banks of the river. Recent experiments in this vicinity prove that the cost of all the materials of iron manufacture in the Tennessee Valley—coal, ore and limestone—is no greater than the cost of the limestone alone in the vicinity of Pittsburg. Give us as cheap a highway to market as the Ohio river, and we can undersell Pittsburg every where.

The experience of the past admonishes the South not to rely entirely upon her

agricultural resources for her greatness. The history of trade and commerce teaches us that those nations are most flourishing, and independent, whose exports are greater than their imports, who not only raise their bread and meat, but convert their raw material into productions to be consumed by others. The sooner, then, we accept as a truth that the opening of the navigation of the Tennessee river lies at the basis of the success of all our manufacturing enterprises, the sooner we shall be prepared to take up the march of progress.

It would occupy too much of your time were I to attempt to illustrate particularly the effect upon the commerce and manufactures of the South of the construction of the Muscle Shoals Canal. That duty properly devolves upon the Committee on Memorial. Suffice it now to say, that on the accomplishment of this work depends a chain of sequences which will surpass the most enthusiastic hopes of those who are now most interested in its success.

The country now drained by the Tennessee has now arrived at such a stage in the development of its resources that cheap water communication for its products is an imperative commercial necessity. The iron and the coal of the Tennessee Valley are the best in the United States. This is strong language, but the pioneer of the iron manufacture in East Tennessee (General John T. Wilder, of the Roane County Iron Works, late Major General in the United States army,) who is now, from raw ore and the raw coal, making fifteen tons daily of the finest pig iron, will confirm my statement, and will tell you that the annual exportation of coal and iron alone from the mines of Tennessee, Georgia and Alabama, will, with free river transportation, be reckoned by hundreds of thousands of tons. The iron ore of Greene County, Tennessee, is now exported to England for the manufacture of steel. Let the river be opened and a stronger case of "carrying coals to New Castle" than this will be shown. Then pig iron made on the banks of the Tennessee can and will be furnished to the manufacturers of Cincinnati at cheaper rates and of better quality than they can procure it from Pittsburg, and can be laid down at the door of the Pittsburg maker himself for a little more than his raw materials alone now cost him.

Such being the case, the shrewed men who have founded the vast mining and manufacturing interests of the North will come, as they are even now coming, to take these rich treasures—not from the bowels of the earth as they have been compelled to do at home, but from its very surface, where they now lie, as they have lain for ages, only waiting the hour and the man.

They will take the coal and the ore and the limestone which everywhere are found in close juxtaposition, and shape the iron into every form which the necessities of mankind have demanded or the ingenuity of man has devised.

Open this river, and along its banks in its fertile valleys rich fields of waving grain and snowy cotton will be seen where now the primeval forest rears itself, and among the hills and mountains which overlook its waters, will be heard the busy hum of machinery, the smoke of hundred of furnaces will float upon the air, the banners of civilization; and upon its broad bosom will be borne the commerce of a mighty nation.

Let the grand obstacles at Muscle Shoals be removed and the growth of this great valley in material wealth and prosperity will gladden the heart of every patriot throughout the land.

When these shoals are no longer an impediment to commerce, it will be seen (as has been recently so ably demonstrated by Commodore Maury) that through this river the agricultural products of the great West must at length find their main outlet to the markets of the world. Then the other improvements of which the river is susceptible, will one by one be consummated, until the vast commerce that now vainly seeks an outlet through the ice-bound lakes of the North, and the frozen canals of New York, or shrinks appalled from the terrors of the Florida Pass (see physical survey of Virginia by M. F. Maury, p. 69,) finds a safe and commodious transit to the markets of the world along the Tennessee (never obstructed by the least pellicle of ice) to its source, and thence by canals to the waters of the Chesapeake Bay. Then indeed will this noble river be recognized as nature intended it, the great highway of the American nation, second only to the Mississippi.

ART. IV.—THE DARIEN CANAL PER CONTRA.

The treaty of Mr. Cushing, and the agitation of the canal project, has, of course, excited the opposition of all contrary interests. The *Commercial and Financial Chronicle* apparently represents two interests antagonistic to the canal. The first is the Panama Railroad Company, which now enjoys a monopoly of the inter-oceanic transit. The second is the Pacific Railroad Company, which, having secured a Government appropriation of nearly one hundred millions, naturally, neither desires to see any competing company take either the further credit of the Government, or construct a competing way. We have been always prepared to see these powerful interests combine against any other Isthmian route, but this will insure a counter combination of all those interests which will be promoted by opening more inter-oceanic ways, whether by Darien, Chiriqui, Honduras, or Tehuantepec. The coming commerce between the South seas and the grand West of the United States, demand several competing ways of intercourse with the Pacific, and we do not fear that the objection cited by the *Chronicle* will defeat a measure of such vast consequence to the world as the Darien Canal. It may be observed that the line of eighty degrees longitude passes along the whole west coast of Ecuador, Peru, Chili, and Patagonia. It crosses the Isthmus of Panama and Darien, and traverses the United States in such a direction as to make the Mississippi river and its tributaries the most favorable means of supplying those precious products of the western coast of South America to the interior States of the American Union. This great geographical fact will unite the whole interior representation in Congress with the shipping interest of New York and Massachusetts in favor of opening the Darien Canal. The preponderance of interests will be in favor of its construction. We publish, however, the moral and physical difficulties in the way, that they may be considered, and, if possible, corrected. Some of the objections seem valid; others are by no means insuperable. We certainly do not assent to the *Chronicle's* proposition to invite other nations to participate in the great work. If it be practicable and profitable, why ask a partnership in what we can do ourselves? Why complicate ourselves in a co-protectorate? If, upon due examination of the whole subject, it shall seem proper, let the United admit the State, within whose boundaries the Isthmus of Darien lies, into the American Union, and construct the canal as a work of internal improvement.—Ed. REVIEW.

The *Chronicle* says:

"Perhaps the greatest hindrance to the successful prosecution of the work will be the want of suitable laborers. These must be procured in large numbers, and in determining from whence this supply could be drawn, the experience in

BUILDING THE PANAMA RAILROAD.

is of much value. It was first undertaken with the assistance of such natives as could be procured. This small force was supplemented by a party of negroes from Carthagena—not exceeding fifty in number. About fifty Irishmen were also obtained, and at the same time, and later, a considerable force of mechanics and laborers arrived from Jamaica, Carthagena and the United States. In August, 1850, the number employed in the surveys and construction was about 400 men; but sickness, caused by exposure to incessant rains, and the effects of an atmosphere saturated with malarial poisons, made such inroads that, in a few weeks, more than half their number were on the sick list. The ravages of the fever caused also the desertion of such a large proportion of the remnant, that the work was temporarily suspended. A fresh supply of natives having been recruited from the surrounding country, the work was once more started. To sustain the force,

however, it was necessary to procure labor from every part of the world—Irishmen, Coolies, Chinese, English, French, Germans, and Austrians, amounting in all to over seven thousand men. With this force it was supposed that the time required to complete the work would be in a ratio proportionate to the numerical increase of laborers, all of whom were believed to be able-bodied men. It was found, however, that many of these people, from previous habits and modes of life, were totally unsuited to the work for which they were engaged. The Chinese, one thousand of whom had been imported, were greatly depended upon, and every arrangement was made for their health. But they became disaffected in less than a month, a large proportion of them ended their lives by suicide, the remainder becoming of little use. Disease broke out among them and raged so fiercely that, in a few weeks, less than two hundred remained. The Irishmen and Frenchmen also suffered so severely that it was found necessary to send them home as quickly as possible and supply their places with negroes from Jamaica, who also proved to be of little use as workmen, though best able to resist the influence of the climate.

"The difficulty of procuring

SUITABLE LABORERS FOR THE CANAL,

the work of grading the surface and laying a single track of less than fifty miles in length, is a mere trifle compared with the labor of cutting a ship canal over or through the mountains. The engineer of the railroad, basing his calculations on his own experience and a thorough knowledge of the topography of the country, believes that 15,000 men could build the canal in 10 years, or 20,000 men build it in 5 years, provided the active working force were kept up to that number by constant additions of fresh recruits. This would require an aggregate of more than 200,000 able-bodied men, allowing for the probable desertion, sickness and mortality. The malaria that renders the climate fatal to whites is so generally known that it would be difficult to induce many Americans to engage in the work, even if the most liberal pecuniary inducement were offered. Natives could not be procured in sufficient numbers. Europeans would not be able to stand the fatal influence of the climate. Coolies and Chinese would not be profitable (if the experience of the railroad is to be taken as the test,) and Jamaica negroes are not worth, as laborers, the cost of maintaining them. The only source then from which it would seem probable that a suitable force of good workmen could be obtained, is Africa, and if it should be necessary to press them into the service we should be reviving the most objectionable features of the old slave trade.

"Besides these difficulties in the way of the construction of the canal, others exist

TOUCHING ITS PRACTICABILITY

when finished. Of these most important, perhaps, is that it would be available for steamers only; it being evident that, under ordinary circumstances, sailing vessels could go around the Horn more safely and profitably. The vessels would not only have to be towed through the canal, but before they could be fairly started on their voyage across the Pacific, it would be necessary to tow them at least two hundred miles out to sea. That entire section of the coast, from the Equator to 15 degrees north latitude, may be said to be free from wind available for sailing vessels wishing to go in any particular direction. Geographically, it is known as the region of the southeast and southwest monsoons, including the entire west coast of Central America, Darien, Columbia, and Equator. During the greater part of the year, this is a region of perpetual calms, or light baffling winds, that are too fitful and uncertain to be relied on by shipmasters. To avoid this it is necessary for vessels following the coast from Cape Horn to San Francisco to keep at least 200 miles at sea to avail themselves of the northeast and southwest trade winds. Sailing vessels sometimes spend six or eight weeks in getting out of the Bay of Panama into the northeast trades. During the greater part of the year it would be necessary to take the sailing vessels going through the canal out to sea, if it was proposed to make trips much shorter than the less direct route round the Horn. As this could never be made to pay, considering the canal toll, the cost of towage, and the increased insurance premiums over rates charged on vessels

keeping in open sea, sailing vessels would find it safer, and more profitable to follow the old route.

"If what we have said, be correct, the canal prospect

DOES NOT PROMISE VERY FAVORABLY

as a business speculation. The practical question arises, will it pay for any company of private individuals, or for any single government to undertake the work. It appears to us that it will not. Besides, we already have a railroad across the Isthmus and expect within a few months to see our own Pacific road completed, thus uniting the two oceans. The building of the canal would certainly be a magnificent project, but with this grand highway across our own country, is it a plan upon which our government, or people, can look with very great interest as promising sufficient benefit to them to warrant the necessary outlay? Far better would it be that all the maritime nations of the world should undertake it and hold it as joint property to be free to the trade of all, and only such tolls charged as may be necessary to meet the expense of maintaining and repairing the works."

ART. V.—THE COTTON TRADE.

[From a Letter to the Editor of the Liverpool Albion.]

Sir—I am actively engaged in the cotton trade, am often in London and Liverpool, and am continually asked how it is that if spinners and manufacturers are losing money they continue to buy cotton largely, and short time seems as distant as ever. It is simply useless to explain that it is more to the interest of the spinner to run a mill full time at a certain loss than to stop altogether or even run short time. The simple reply is. "Oh, yes; we always knew you lived by your losses; we suppose it is the quantity that saves you." It may, therefore, interest many if this question is openly discussed in your paper. According to a Parliamentary return in 1762, there were in England and Wales 2,715 cotton factories, containing 28,352,123 spindles, and 368,123 looms, and employing 407,598 hands or workpeople. The number of factories have increased since 1862, and I think if, for the sake of argument, we calculate this increase according to the increase in consumption, we shall be as near right as necessary. In 1862 the average weekly consumption in Great Britain was 22,185 bales, many mills were stopped, and I therefore take 1860, when the consumption was 50,633 bales and estimating our present consumption (supposing all mills on full time) at 55,000 bales per week. I feel confident that I am under-estimating the case when I take the increase in mills and machinery at 10 per cent., for the last seven years, making the estimate of 1869: mills, 2,986; spindles 31,187,337; looms, 404,935; hands, 448,357. Now taking the average cost of mills at 25s. per spindle, and loom-sheds at £20 per loom, we have a capital sunk of £38,984,171 in mills, and £8,098,700 in machinery and looms—say £48,082,871. I will take this as £47,000,000, for the ease of calculation. This 47 millions does not represent the entire capital employed in cotton spinning and manufacturing; it simply represents the amount locked up in mills and machinery, and which must remain so whether the mills work or not. The mere interest on this amount represents, at 5 per cent., £2,350,000 per annum; to this we must add another 2½ per cent., or £1,175,000, to meet depreciation in value and incidental expenses which must go on whether, the machinery works or stands, and this makes the standing charges upon the mills and machinery to £3,525,000 per annum—or say £68,600 per week, which represents on 55,000 bales per week about ⅓ of a penny per pound. It will thus be seen that the result is the same, whether a spinner allows his mill to stand, and loses ⅓ of a penny per pound upon the weight of cotton he would have consumed, as if he runs his mill full time and sells his production ⅓ of a penny per pound below what it costs him to produce. The larger the quantity turned out of a mill the cheaper it can be produced, as the entire standing expenses of a concern must be borne by the entire quantity produced, be that product large or small. There are again other

considerations besides the loss of $\frac{1}{2}$ of a penny per pound standing expenses, which makes it more to the interest of spinners to work full time at a still greater loss. Most mills have cottages and rents, coming in from their own work people, and if these cannot find work they cannot pay rent. If a mill stops, or works short time, the work people leave and go elsewhere, and when wanted cannot always be got back. Then, again, if a spinner stops his mill he loses his customers, because he cannot supply their wants, and they go elsewhere, and having once gone, it is not easy to get them back again; so that to make a long story short it is clearly the interest of the spinners and manufacturers to work on at a loss, rather than stop their mill, unless they could be unanimous and all stop at once, when cotton would go down and goods up; a state of things not likely to result at present. I calculate that there must be an average loss of 1½d. per pound before spinners will run short time. The loss per pound depends upon the coarseness or fineness of the production, and therefore I give the average result. I hope my letter will call forth rather more sympathy for the cotton trade, and warn cotton holders against speculating upon the idea that because the consumption continues, the trade must be profitable; there is a limit to everything, and cotton spinners and manufacturers are fast getting to the limits of their means; and then, the longer they work the greater will be the crash when it does come. There is great wealth in the cotton trade, but a mill stopped is valueless, and if all the mills were stopped and the concerns wound up, I do not think there would be 15s. in the pound for the creditors, and in many cases not 15d.

Yours truly,

COTTON.

ART. V.—NEW ORLEANS IN 1802.

It was under the administration of the Marquis of Casa Calva, that the present century was ushered in, at our then very flourishing metropolis. All the expectations of a grand future were fully before the renovated community then joyfully looking for the close of events awaiting them, by being incorporated with that astoundingly progressive nation which began to fill the eyes of a wondering world. What marvel, then, that at that eventful epoch, a host of aspiring spirits should flock to the shores of the Mississippi, almost as by an unanimous agreement, from all the quarters of the globe. Among these many adventurers and travelers, we shall select one who has left behind him a description of our city, from which we will call, for the reader's edification, some extracts, showing the then outward looks of this country. The writer was a former colonist, or planter, from St. Domingo, whom the fearful events in that island had first driven to the city of Baltimore, from which place he afterwards removed to Louisiana in 1799. Living with his family for two years and a half in the upper part of the city of New Orleans, or what was then called the Tchoupitonlas District, he writes, in the month of May, 1802: "The depth of the river before the city may be some forty fathoms, whilst fifty years ago, it is said, it was some seventy fathoms deep, which would show a filling up of the bottom, supposing no errors to have been committed in former soundings. What the river may have lost in depth, it has, however, gained in greater width, for it is at least some five hundred fathoms, or near three thousand feet, in breadth from shore to shore." What the author seems most to have observed, was the formation of the

upper batture, then already very visible in the stages of low water, and which contributed, necessarily, to widening the river, by taking away from the opposite shore. Speaking of the Canal Carondelet, he regrets "that the water course should also have been neglected since the departure of its author, in 1798, in consequence of which, sea vessels that need to come up close to the city, are now obliged to discharge their cargoes at the little village of the Bayou St. John." Our readers will recollect that in a former number we mentioned the circumstance that the widening and deepening of this canal was undertaken and carried out in 1816, by Dusseau Delacroix, the bondsman of Daniel Clark, who had taken charge of this enterprise by public contract with the Navigation Company, incorporated early under the territorial *regime*. During the making of this improvement, the vessels, small and large, would of course, have to stop and discharge their freight at the port of Bayou St. John, which rendered the village quite lively in the time that we visited it, say August, 1816. But let us return to our author of 1802. "The city proper is six hundred fathoms long, by about three hundred in depth; the streets cross each other regularly, and being in a strict line, those running from the river are regularly bounded by the curtain of cypress woods losing themselves in the morass. As for the streets parallel to the river, or running up and down, they are bounded by the stockade or pickets surrounding the oblong square, and some fortifications, or earthworks, much fallen into decay or ruin, although the works have cost the Spanish Government, as well as the inhabitants, a considerable amount of money." By consulting the subsequent history of Louisiana, it will be found that, during the temporary excitement of the Aaron Burr conspiracy, these fortifications were put again in a state of repair, by order of General Wilkinson, and under the administration of Governor Claiborne, in order to guard against any sudden surprisal on the part of the expedition or military adventure, said to be descending the river at that epoch. This must have been the last occasion for renewing the defences around our city, for in later years, about the time of the Baton Rouge and Bayou Sara insurrection, and surrender, in 1810, we have noticed that the City Council ordered the demolition of all the earthworks and filling up of the ditches inclosing the old square.

Suburb Marigny had been laid out about the year 1805, consequently that District, as well as the Faubourg St. Mary, were fully outside of the line of this enciente. In Major Stoddard's work upon Louisiana—who visited the Lower Delta in 1809—a very fair and detailed description of these surrounding fortifications can be found, mentioning, however, that the various bastions and curtains had but a small proportion of the assigned number of ordnance. The four gates, formerly mentioned, were made of strong log pickets, or palisades, and guarded by appropriate earthworks and watch-house. Again turning to our author, he complains about the scarcity of public promenades or walks, there being no other outlet of the city and its environs than that towards Bayou St. John, and

this promenade, or exercise, he says, was very inconvenient, on account of the clouds of dust arising in the dry summer season, when every body, on foot, horseback, or in vehicles, would rush out of the city; and the unreclaimed sloughs and mud holes in the rainy weather, when horses and vehicles would everywhere be irretrievably stalled. This was, no doubt, the case, as we can personally attest, before the paving system was introduced in 1820. But our readers know by their present experience how wonderfully all this has been changed since the introduction of the horse-car railways, and how lovely have become the environs of our city, and how easy of visiting their enchanting rural retirements since the opening of the many communications.

Speaking of the buildings and houses in New Orleans, our traveler finds that, notwithstanding the great losses sustained by the inhabitants by fire, they still continued to erect most of their dwellings of the most combustible material, the cypress wood, which latter, however, he considers the most suitable one for that purpose, putting fire risks aside, on account of its marvellous quality in resisting, for an indefinite length of time, the moisture and dampness of the climate. Most of the dwellings he calls barraques, or shanties, regarding only the brick stores and dwellings lately erected by the "Americans" as worthy of his attention. As for the public buildings, the market house, theatre, ballroom, etc., he vents his spleen in no measured terms, calling them the most pitiable constructions ever beheld in his life, for similar purposes. The ballroom, or saloon, somewhere in the middle of the town, (about St. Philip street, towards Royal,) he denominates a "long log inn, without either looking glasses, lamps, or lustres for light, or ornaments of any kind, and to reach which, one has nearly to wade up to one's ankles in mud and slush." Those were the times that the belles went the ballroom in gentlemen's boots, leaving them at the door for the dancing shoes or slippers. C. D.

ART. VI.—OUR TREES—WITH SOME HINTS ON LANDSCAPE GARDENING.

The process of growth and the decay of trees, like geological changes, are so slow and imperceptible as not to be well comprehended by our observations. One century gives way to another, races disappear, but trees remain and are kindly to the new generations.

It is two thousand years since Horace lived at Tivoli and praised country life, perchance beguiling sultry hours under leafy shadows, with the ode "*Ad fontem Blandusia*," yet it is said there still stands in Lombardy, not far from the Simplon, a cypress that was flourishing in those old Augustan days. Lamartine, in his pilgrimage, was overpowered at the sight of the sacred olives he found still growing

east of Jerusalem; and that grove of cedars, "The glory of Lebanon," whose birth-date is lost in the mist of so many centuries.

The trees of England are sturdy, deep-rooted, and tenacious of their life-currents. A poor thorn has stood sentinel, at the corner of an estate, for these four or five centuries. Gnarled oaks, in ancient parks, have been dropping their acorns since Alfred's time; the rise or decline of Normans, Tudors, Plantagenets, have not affected the prerogative or dignity of these *Dei gratia* kings of the vegetable world. These venerable woods are in some sort associated with all our pleasant ideas of English life. We read Drummond, and perceive "The stately comeliness of forests old." We enter into the gayety of Milton's picture of

"Many a youth and many a maid,
Dancing in the checkered shade,"
—Or pause in *L'Allegro* at the prospect;
"Towers and battlements he sees,
Bosomed high in tufted trees."

Shakespeare, perhaps, was looking back from the noise and dust of London, with a little pang of regret, to his younger days, when he was given to deer-stalking, and so puts into the mouth of Orlando the address to those "Who under the shade of melancholy boughs, loose, and neglect, the creeping hours of time."

Cowper beguiled his dark thoughts among the limes of Weston. Gray loved the beech. He tells Walpole, in one of his graceful letters, that he was wont to seat himself at the foot of one of these trees and read Horace; and he refers to it tenderly in the *Elegy*.

From our childhood we have formed certain associations with all the more familiar growths—that the yews are solemn and monastic, standing close to old church towers, keeping fresh the turf over those who have found their portion "among weeds and outworn faces." That the elms are patrician and cluster about old manor houses, with rooks as feudal tenants, among their swaying boughs, and that the suggestive grace of their arching branches has given us the pointed Gothic. The oaks are regal, and belong to the great parks that lie between the coast of Devonshire and Northumberland.

The forest laws of the Norman kings no doubt contributed, in a great degree, to preserve the trees of England; what was first done for the mere love of the chase, was continued through a sense of pride. When Lord Bacon was in disgrace and reduced to want, it was suggested to him that he might handsomely supply himself with means, by cutting down the woods at Gorhambury, but he refused, says Lord Campbell, saying, "I will not be stripped of my feathers."

Perhaps in no period of its history, has the old world possessed such vast wildernesses of trees, such a shadowy luxuriance of vegetable growth, as our own country has afforded; yet strangely, for all this prodigality of nature, there is scarcely a country house of our land shaded by trees, the growth of more than one generation. We need forest laws, established by public opinion and taste, to

preserve our greatest natural advantages

It is true, that in the sparsely settled districts, and especially in the States south of the parallel of the upper Potomac, nature holds her sway more completely. It is of this latter section (most of it very familiar to the writer,) that he would speak.

Agassiz tell us that on the coast line, as we go southward, we find on passing Cape Hatteras, new *fauna*. Let me suggest a somewhat similar boundary to our vegetable kingdom. From the James river south to the Gulf of Mexico, bounded on the west by the terraces and spurs of the Blue Ridge, extends an evergreen belt; it also embraces the States that lie between the Savannah river and the Mississippi. The rest of the cis-Mississippi Southern States are covered by deciduous growth.

This division, it is true, is not entirely arbitrary. In the mountains of Virginia, Kentucky and Tennessee, are found evergreens of the high latitudes; in the Carolinas, Alabama and Mississippi, forests of deciduous trees; but by far the greater portion of this latter territory is covered with the pine, magnolia, holly, live oak, and their kindred, the cypress and juniper. Each class has its own peculiar excellence and beauties. The traveler who goes from the valley of the Shenandoah to the White Sulphur Springs of Virginia, as he rises, successively, to crests of mountains, sees far to the north and south, sharp ridges and deep valleys, clothed everywhere with pines, whose sombre and unchanging tints give a greater gloom to the depths of near and distant gorges, and throw over the whole landscape a melancholy isolation, which seems neither to invite nor require human sympathy.

Quite different is the scene which opens to the view of one who, going southward from Salem, Virginia, finds himself suddenly in the lofty balcony of Fancy Gap, and sees the oak woodlands of Carolina stretching far away to the head-waters of the Yadkin. The undulations of the rolling ground are smoothed down by the great distance, and it seems a vast plain of foliage, out of which rises the blue and isolated head of Pilot Knob.

It is a cheerful scene withal, for the deciduous trees are home-like and seem to share the vicissitudes of humanity, putting off their foliage in the melancholy days, and anon, arraying themselves gayly, when the sun brings back the thrush, and swallow.

However, the pine lands are not wanting in their cheerful features. Those of Carolina open out like immense parks, being clear of undergrowth, and a hunting party may gallop through them, or a carriage may be driven freely over a springy carpet of sedge-grass, with few obstacles to bar their progress. The cypress marshes may be considered the border or fringe, of the eastern evergreen belt. They extend, under various names, from the Great Dismal of Virginia to the Everglades of Florida. These trees attain majestic proportions, being frequently found sixteen or eighteen feet in circumference at the base, and one hundred and twenty-five feet in height.

As a reminiscence of the olden time, Mrs. S., of Newbern (whom

I may recall, I trust, without violating the sacredness of the Penates, as a courtly, and endearing, representative of an earlier, and perhaps a better school,) told me that her father, a young officer of the Revolution, while scouting at one time, with four or five of his troop, discovered the approach of a body of Tarlton's cavalry, and it being dangerous to retreat, he ordered his men to dismount and lead their horses into a hollow fallen cypress, not far from the road; the whole party were thus concealed until the enemy had passed.

The gloom ascribed to these forests it is difficult to appreciate, when clothed in the full drapery of summer. Standing upon some ridge of firm ground, you look out upon a shallow lake of clear brown-tinted water, by no means unpleasant to thirsty lips, and see the trunks of these trees, symmetrical as Byzantine columns, rising from the surface as far as your eyes can penetrate. Among these, great numbers of parasitic plants entwine themselves—the yellow jessamine and trumpet honeysuckle being very prominent, the latter displaying its graceful festoons and wind-shaken tendrils, sixty or eighty feet from the ground.

Along the still and deep rivers of these lowlands, the density and luxuriance of the vegetation is altogether tropical in its characteristics. For example, if you go up the Chowan, in June, you find yourself closed in by walls and mounds of foliage, besprinkled with flowers, so free from straggling limbs and unpleasant angles, that they seem, especially at the bends of the river, to have been subjected to the culture of the hedge-knife.

In the lea of the storm-fronting Hatteras, appear some of the trees of warmer latitudes, the live oak, the pride-of-india, or china tree, that shades all Southern homes, and even the shrinking tropical mimosa. The live oak, however, seems hardly indigenous so far north, though found in some localities. My thoughts turn back, pleasantly, to the old colonial town of B., at the head of the Pamlico, where stood, ten years ago—perhaps now stands—a dark weather-stained house, built the same year his Royal Highness George I., married Caroline of Anspach. Shaded by vigorous and wide-spreading live oaks, this structure showed many marks of decay and antiquity; while the trees, no doubt as old as the building, were in the very vigor of youth. A hundred and fifty years, make but a small rim of circles over the heart of a live oak.

These trees flourish most luxuriantly in Florida and Louisiana. The shores of all the deep bayous of the Teche, and Lafourche country, are bordered by venerable trees of this class, well bearded with Druid mosses, through their gleaming foliage white planters' houses appear with marvelous attractiveness. Before leaving the evergreens, we turn to pay our court to the queen of them all, the *Magnolia Grandiflora*. It is found below the Pamlico, and many a fine avenue in the low country of South Carolina, is bordered by these stately trees; but no where has the writer seen them in such perfection as on the great rivers of Alabama.

What the lotus is to Egypt, what the rose is to Persia, the magnolia is among Southern evergreens. When the sky is warm with

the languor of May, and the elms and ash trees have dressed themselves for summer, the magnolia, modestly concealed by these, her attendants, disrobes herself of her winter covering and appears attired royally for the sun, as some Cleopatra for her Antony; her gleaming drapery, knotted with great snowy buds and bursting flowers, whose thick petals seem carved out of stainless alabaster. You inhale the delicious odor of these blossoms, long before your eyes make you aware that you are in the presence of the queen tree of the Occident. Leaving this voluptuous court, where it should be "always afternoon," we come to the growths of a calcareous soil, and a higher elevation. The natives of Kentucky and Tennessee know nothing of the evergreens, except the cedar; from the Cumberland mountains and Blue Ridge to the Mississippi—save a narrow belt in Gordon county, Tennessee—there are no pines. The great forests of these States are most exclusively oak, the red varieties being most abundant.

The white oak, *quercus alba*, and the post oak, *quercus obtusiloba*, as is well known, grow most slowly, and live longest. The famous tree of Connecticut, wherein was concealed the royal charter of Charles II., belonged to the former variety. It was the most wonderfully gnarled and venerable tree the writer has ever seen; famous in Indian history, it was spared by the English steward who cleared the place to which it belonged, about the year 1640. Professor Brockelsby's estimate of its age was two thousand years. It fell in 1856.

This head of the oak family grows most luxuriantly upon alluvial slopes, and in river bottoms, the post oak upon table lands, and prairies. In a certain part of the Trinity river valley, Texas, these latter, are found in groups, from fifty to sixty yards apart, the trees leaning outward, like skirmishers at a rally. It is hard to conceive that this is not the work of art, so wonderfully picturesque are these park-like prairies.

The Red Oaks seem to prefer the ridges and uplands. If you cross the great table land of the Cumberland mountains, or the ridges that divide the clear, cold streams that tumble westward into the Tennessee, or pass over the hills that shadow the Obion and deep-flowing Bird-Song, you will find everywhere the same familiar foliage. However, we must enter Kentucky, to find the paradise of trees. The daring hunter who first penetrated its solitudes, no doubt, deserved to be considered the "luckiest" of mortals, as Byron represented him—

"Of the great names that in our faces stare,
The General Boone, back-woodsman of Kentucky,
The famous among mortals everywhere."

He found majestic tulips, groves of gleaming gums, and maples, shapely and slender ash trees, with elms, white-coated button-woods, mimosa-leaved locusts, and black-walnuts, adorning all the pleasant slopes that led to the banks of clear, and attractive rivers.

The size of the trees must have filled him with admiration. .On

one of the tributaries of the Barren river, the writer measured several "poplars," *Liriodendron tulipifera*, and found them from one hundred and forty, to one hundred and sixty feet in height. Though, perhaps, the largest tree of Kentucky, it does not in any degree overtop its neighbors. I am not aware that any one has attempted to do justice to the exceeding beauty of the river bottoms of this State.

To the lover of wood-craft, they are filled with attractions at all seasons of the year. In the early spring, the trunks of the ash and beech trees are covered, for some distance from the ground, with the greenest of mosses, and though the snow may still linger upon the hills, in the interstices of their roots may be found pale star flowers, and retiring violets. When the "swart star" is in the ascendant, no resort is pleasanter to the idler, than these cool groves, flecked with the nebulous shadows of lofty boughs, which altogether exclude the sun. When the mists of the summer of St. Martin settle down upon the hills, the hunter wades through drifts of brown leaves, to feast his eyes upon all delicate and gorgeous colors, from the straw tints of the *laurus sassafras* to the scarlet glories of the *quercus sanguinea*.

Such are these trees as nature has left them to us, grouped together with a subtle grace, which no combination of art can in any degree equal.

When the planter makes haste to use the axe, he should consider that the beauty of trees is the production of centuries and not of generations. It was a happy remark of Irving in reference to the improvement of grounds, that "no tree should be cut down, unless the landscape concealed by it was more beautiful than the tree."

Though the improvements of agricultural science are finding their way to remote and obscure plantations, the volume of landscape gardening is hardly opened. There still linger traces of that system introduced into England by William of Orange, trees, and shrubbery, scrupulously trimmed into fantastic shapes, rectangular walks, and flower pots, streaked, and reddened, with such flaming plants as poor Goldsmith went wild about, when he strolled through the Netherlands.

Hogarth has shown us that the curve is the *natural* line of all grace and beauty. We cannot too closely follow the steps of nature. The genius of the artist is the genius of observation. Albert Durer excelled in foliage, and Ruskin recommends to the consideration of his pupils the patient study which that artist gave to his models. When Sir Walter Scott visited a cave, that he afterwards introduced into one of his novels, his companion was surprised to find him noting the names of the flowers he found growing at its entrance, in his memorandum book. It is in grouping trees according to their habits of growth, that the highest artistic skill is displayed. The holly and wild peach, keep close to the feet of the queenly magnolia, the cypress and juniper divide the kingdom of the Southern marshes. In the higher latitudes, as in the upper waters of the Kanawha and New river, the feathery arbor vitæ and glaucous-leaved

kalmia lean upon one another to support the winter snows. The oaks are more than friends, they are clansmen ; so are the pines, whether among the mountains or in the low lands. The live oaks, and laurel oaks stand together ; so do the beech trees and maples. In general, it may be said that the evergreens belong to silicious, and the deciduous growths to calcareous soils. Too great efforts should never be made to introduce that which is eminently exotic. As one, versed in the amenities of life, selects for reunion, congenial friends, that nothing be introduced to mar the general harmony, the skilful gardener so plants his trees, that the great laws of nature, which are so perfect in the arrangements of light and shadow, and the combinations of color, may not be broken. This is a subject worthy of more conscientious consideration. The world, it is true, is old and cynical. *Philyra* dwells no longer among the *lindens*, nor does the gentle and beautiful *Daphne* preserve her purity among the leaves of the laurel. *Apollo* has left the woods of *Delphos*, and that pleasant divinity which haunted the oaks by the river *Liris*, has departed, but there are still those who find a certain grace in these traditions, who discover that "there are tongues in trees, and books in the running brooks." "The useful recommends itself," as *Goethe* has said ; let us, in some degree, endeavor to cultivate the beautiful.

ART. VIII.—NAPOLEONIC POLICY.

BY DR. J. E. NAGLE.

Twenty years ago, France was in a condition of insecurity and doubt, which resembled very closely the present political situation of these United States. The abuses of royal power, the expenses of Bourbon sovereignty, the utter disregard of every interest that was calculated to make France great, and the oppression which trammelled the industrial, commercial, and political condition of the kingdom, aroused a spirit of resistance that only wanted a leader to direct the malcontents, and clear the land of that incubus which haunted the kingly palaces of France.

At this moment of need, there came into view, a man, whose name aroused the enthusiasm of the revolutionary elements. At first, his attempts at establishing himself on the throne were considered the veriest freaks of a madman. The press of all lands recognized in the new man the resurrection of the Knight de la Mancha. His efforts were reckoned the very essence of folly, and an universal laugh of derision greeted the so-called adventurer who sought to rule France.

But there was a talisman in the name of Napoleon, that made the world of France rally about him, as their ancestors had done about the eagle of his great predecessor. The man of destiny grasped

the truncheon and wielded it with a grace and wisdom that not only inspired confidence in him, but brought around him the armed men of the Republic. His brevity of speech, his ominous silence, and brave, and prompt action, met every necessity of the hour. His courage, that had been displayed single-handed against the entire power of royalty, and the daring with which he accepted the reins of government, inspired an enthusiasm in the hearts of his high-spirited countrymen that was hardly exceeded in the days of victory and triumph.

Throughout France, on every gay street, and glittering boulevard, in the boats and craft that floated on the Seine, in the *cafes*, the palaces that once echoed the footsteps of the Bourbons, in the emblazoned houses of the merchants, in the illuminated quarters of the *bourgeoisie*, the haunts of the students, the theatres, the churches, and the imperial palaces of the Louvre and Versailles, there resounded the exultant cry, *Vive le Republique!* France was intoxicated with the gas of liberty. The churches echoed *Te Deum* for the goodness of God, who had vouchsafed to the Republic the great boon. The wild enthusiasm of the *canaille*, translated it to mean *license*, and oh, what hideous deeds were then done in thy name, Liberty! *Le Partant pour la Syrie*, was the chant of the intelligent masses; *La Marseillaise*, the song of the millions. Like a dream, the memories of that period come back and assist me. The barricades resounded with the cry, and the red cap was the standard of patriotism. Throughout the vinelands of the Seine, Rhine, Moselle, and Loire, bands of excited provincials made the welkin ring with the fierce and terrible national battle hymn, "Ye Sons of France, Awake to Glory," was the shout that echoed in the streets of Strasbourg, and awakened the officers from their sleepy stupor in the service of Louis Philippe. They doffed their gay trappings, and with the jaunty red caps of liberty on their heads, stepped proudly to the standard of the Republic, and shouted the *Marseillaise*. In every defile along the Yungfrau, among the vine clad hills of the Moselle, down the valleys, and across the mountains, echoing over the green wave-like surface of the Pyrenees, gathering enthusiasm as they went down the Rhone, into Lyons and Marseilles, they found everywhere welcome among the people. There was every symptom of a rising storm. The hatred of despotism, and aristocracy was revived. The dread of that priestcraft which so often surrounds the throne with its web, was manifest. The era of the revolution threatened. At this critical moment, Napoleon became President. The unanimous vote of the French people made him guardian of their welfare—of their liberties. Almost in an hour, a change was wrought. The world stood amazed at the genius which had brought order and government, out of the chaos of anarchy. The hordes of vagabonds and idlers who had so lately wandered over the land, making the world of France hideous with noise, and terrorism, quietly dispersed, and ere they knew how it occurred, they were engaged in employments that kept them from idleness and politics. The *Marseillaise* was not interdicted, but simply became

unnecessary, and so fell into disuse. Government took shape, commerce felt the influence of wise laws, that gave safety and guarantee to enterprise. The mechanical arts found security, and a fostering spirit in the special attention of the Government. Firm and wise laws regulated the political and social condition of the people. The army was thoroughly organized, and the police force of the nation became more effective than it had ever been. And all this was the work of Napoleon III.

It soon became evident that there were ambitious men surrounding the President, who were determined to share the larger portion of the profits and honors of the Government. They projected revolution. The emissaries of the dethroned family were infecting France with a longing and ardent desire for the pageantry and pomps of royalty. The Government was too simple, too undemonstrative, too unimpressive, for the people of la Belle France, and for this they muttered against the system, rebelled against the Republic. The hoarse murmur reached the workshops, and secret societies began their work of opposition and revolution. The very word has an indescribable and irresistible fascination in it to *le bas peuple*, and to the seductive persuasions of their orators, the music of whistling bullets, the promised carnival of pillage, plunder, with the spectacles of conflagration and the alluring carousal in blood and rapine, they lent willing ears. Again the battle cry of the nation was heard in the resorts of the people, the conspirators flitted about like phantoms in the darkness, inciting the women, by promises of plunder and gew-gaws, and the men by dreams and hopes of ease and elevation. But there was a vigilant eye watching all this. A master hand was guiding the State. Reticent to a fault; known by the *soubriquet* of the Imperial Sphinx, he saw all that was occurring, but announced no word of policy. Suddenly, he uttered a proclamation that startled the world with its daring and brilliancy. He pronounced the Republic dissolved and the Empire accomplished. This was the *coup d'état* of 1852. The people had desired a brilliant court, a grand empire, and he gave it to them. Victory was in their grasp; the gilded magnificence of a throne formed the heritage he renewed for them. The patriots growled, but hoarse-throated cannon and rattling musketry drowned the roar. Bayonets glittered in a cordon around the throne, and on all the borders of France. Threats and attempts at assassination were quietly disposed of. A firm hand, clear head, and brave heart ruled the people of the Empire. The world denounced the ambition of the man, but the world also admired the courage that dared to rule the nation only as it could be governed. Then was exhibited the true greatness of the Emperor. He began a revolution, bloodless, and to be marked in all ages as an epoch of wise policy, never approximated by any ruler. He took for his motto: "Labor is the good genius of peace and greatness." Working with this idea in view, a new era dawned on France. The people were employed; idleness was inexcusable. The workshops were filled with artisans, the shipyards with mechanics, the quarries with laborers, the docks with masons, and the

land became a hive of industrial pursuits, that excited the wonder and admiration of not only his own people, but of the world. The Emperor received the title of Master Mechanic, and right well did he do honor to the name, for in every department of mechanics, science and arts, his inventive genius developed the resources of his country, supplied his people with labor and food, fostered the naval enterprise of his merchants, the genius of art, the wisdom of science, the beauties of literature, and the grandeur of the Empire.

To make the beautiful capital of France the grandest and most charming city on earth, became his passion. As he looked from his palace, or from his carriage as he rode along the boulevards, he saw long rows of irregular streets, lined with houses whose architecture made the scene as hideous as a mouth full of frightful fangs and discolored teeth. To clear these from view, and build a regular city on the *débris*, became his ambition. He calculated that his people must have employment, and this, with the French, means war, or labor. War he knew to be an expensive amusement, that would gain him nothing in any event. So he expended a small tithe of what war costs, purchased whole streets, and wrecked the buildings that bordered on them. Out of this chaotic confusion, long lines quickly took regular shape, and armies of workmen made the scenes lively and animated. His people were contented, because they had work to do, and had not time to listen to malcontents. Soon there appeared in these quarters the magnificent structures and long lines of splendid buildings which ornament Paris. The Prefect of the Seine was denounced for the extravagance of his estimates. He appealed to the Emperor, and was quietly ordered to proceed with the execution of the magnificent conception. Compare this with the palaces and temples reared by an unpaid people to the glory of an Eastern king. It illustrates all the difference between war and vanity. If the rehabilitation of Paris cost millions, will they not be repaid in the superior health and contentment of the people—in the increased attraction of the capital? Have not those millions, in effect, been taken from capital and given to labor, and will they not thus be amply repaid? To these wise measures may be added that recognition of skilled labor which has rendered the Emperor and Empress so popular with that powerful class. To the mechanics of France have been given employment, protection, education; to the merchants a system of internal and foreign transportation by rail and steam which has made large portions of interior Europe seek the sea through the ports of France. There is not in the world a railroad system so complete in its capacity for industrial development, and military defence, as that which Napoleon has carried into effect. Napoleon knew that the powers of Europe regarded him with dislike. It was necessary that he should maintain himself and his dynasty by a permanent system. In the phrase, the "Empire is Peace," he comprehended the great problem of a physical power which maintains peace by, and of its own capacity for war. His military organization is peculiar. It consists in an army which may be mobilized for a campaign and disbanded into

the fields and workshops until again needed. In railroads and steamers, which will converge, and convoy the forces of France to, the point of conflict. Upon a fleet which, impelled by steam, armed with ordnance, and protected by armor, is for the first time in history, a match for the mariners of England. The rein of Napoleon has thus followed as the sequel, and corollary to, those magnificent plans of personal fame and national glory which inspired the first Emperor of that dynasty. There seems nothing projected by the first which has not been carried into effect by the second. Moscow has been avenged before Sebastopol; Waterloo has faded before Solferino, and Trafalgar may some day be avenged by the iron-clad bulwarks and rifled cannon of La Gloire and its successors.

In the success of such plans of moral and material development will be found the monument of Napoleon. They have honored France more than a century of misrule, and ambition. They will send his name to posterity resounding through the corridors of all time. The United States, and especially the Southern people, should recognize in him a great example. They should learn from him that not only popular happiness, but political freedom, can alone be secured by means which add to the wealth, numbers, and intelligence of the people.

[For DeBow's Review.]

ART. IX.—NEVER COMPLAIN.

BY XARIPPA.

Never complain, why should you bare

To the world your heart?

For your red wounds what does it care,

However they smart?

Why burden its gales,

With your woes and wails?

Hush them, and crush them,

Never complain!

II.

What, though your best aims for success

Seem wasted labor?

And what, though fate seems but to bless

Your richer neighbor?

Learn to endure it;

Can complaint cure it?

Your share bravely bear.

Never complain!

III.

Because your path is drear and dark,
Must you shadow mine?
Because I sail a leaky bark,
Shall I founder thine?

Nay! trim your own sails,
To weather life's gales,
Quail not and fail not;
Never complain!

IV.

Craven! to make another's ears
Sewers to drain your life,
Of all its refuse, sighs, and tears,
Ills, and petty strife!
'Tis a beggar's due,
This, "I pity you!"
Disgracing, debasing!
Never complain!

V.

Why will ye to the weakness yield,
Of base repining?
'Tis cowardice, best kept concealed,
This senseless whining.
Why lend to malice
Your heart's gold chalice?
She'll drain it, and stain it!
Never complain!

VI.

What, though hope's golden harvest be
Mingled with tears?
What, though in joys attained you see
But thickening cares?
Bear your own load,
Nor another goad
With thongs of your wrongs!
Never complain!

VII.

Less sins than fretting, are called crime
In this world of pelf.
Be strong, be still; 'tis strength sublime
That conquereth self.
What, though your heart ache,
What, though your heart break!
Wear it, and bear it, but
Never complain!

VIII.

Whate'er the sorrow you endure,
You can find a worse—
Some deeper wound, more hard to cure,
Some bitterer curse.
In comforting others,
Friends, sisters, brothers,
Find some relief for your grief!
Never complain!

IX.

A day will come, when all the pain
 Will be requited—
 When clouded skies will clear again,
 And wrongs be righted.
 Smother your sighs, man !
 Stifle your cries, man !
 Moan not, and groan not,
 Never complain !

ART. X—GUTZKOW'S LIESLE.

TRANSLATED FOR DE BOW'S REVIEW BY MRS. SARAH A. DORSEY.

We have always thought there was rarely, in the old times, an immigrant to America without an history. The distance—the undefined and numerous dangers—the breaking of old family ties, and the apprehension of strangers—all combined to make the removal of our ancestors a terrible enterprise. Advocates, as we are, of immigration, we cannot read without emotion the story which follows, and which has been translated by a Southern lady, one of our most accomplished scholars. We trust this natural tale of the trials of the immigrant may have deterred none from coming to America. Perhaps it was written with the patriotic purpose of stopping this flow of German life-blood. We hope this tide may now set South, for we have use for all the enterprise and resources that Europe may have to spare. They may all find homes in the Southern States, which will be as dear to their children, may be far more prosperous to most of them, than the land they leave. That such is the capacity of this Southern land is proven by the desperation with which its people fought for its liberties, and by the obstinate endurance with which they have borne bondage rather than leave it. We invite attention to the comments on this phase of Southern patriotism by the gifted translator.—ED. REVIEW.

Karl Ferdinand Gutzkow is one of the most eminent of the modern school of German authors, whose "Tendenz novellen," as they are called, or novels expressing the spirit of the age, generally satirising the political and social status of Germany, have given him much celebrity. For one of these, "Wally, the Zweiflerin," (Wally the Doubter,) he was cast into prison, where he remained three months. He occupied his days of imprisonment in the composition of his work, "Zur Philosophie der Geschichte," (on the Philosophy of History,) in which he opposes the Hegelian view. He studied philosophy and theology in Berlin, jurisprudence and political science in Heidelberg and Munich. He has written many novels and plays. His most famous novels are, "Die Ritter Vom Geiste," (The Spirit Knight); "Die Diaconissin," and "Der Ganberer vom Rom," (The Magician from Rome). Among his dramas,

"Uriel Acosta" is, perhaps, the most widely famed. This play possesses the unusual attraction of being wholly a Jewish drama. The only example of such a drama, that we are familiar with, besides Lessing's "Nathan the Wise." Uriel Acosta has been three times translated into Hebrew. We have now lying before us, four of Gutzkow's dramas, "Patkul," founded upon the incidents in the life and death of Patkul, the Swede who was so cruelly treated by Charles XII. After Charles had reduced Saxony, he ordered Patkul to be broken alive on the wheel, and then dismembered. Voltaire himself has no word of palliation for this treatment of Patkul by his hero. The simple recital of the facts, move any modern soul with sympathy and indignation. Gutzkow has skilfully elaborated and developed this piteous story until his drama is really painful to read, but he has softened the fearful mode of torture into the more soldierly death of being shot by Patkul's own Livonians. When Patkul's sentence was read to him, Voltaire says: "On fait savoir que l'ordre tres expres de sa Majeste, notre seigneur tres clement, est que cet homme, que est traître a la patrie, soit roué et ecartete pour reparation de ses crimes et pour l'exemple des autres. * *

* * A ces mots de 'prince clement,' 'Quelle clemence ! dit Patkul ; et a ceux de 'traître de la patrie,' hélas, dit il, 'je l'ai trop bien servie.' Il recut seize coups, et souffrit le supplice, le plus affreux qu'on puisse imaginer." Another drama, "Die Schule Der Reichen," ("The Rich Man's School,") is a graceful satire upon the follies of the wealthy; "Lorbeer und Myrte," ("Myrtle and Laurel,") is a play in which Richelieu and Corneille figure prominently. The drama to which we wish to call attention here is "Liesle." Especially to Southerners is this interesting, for the plot is laid, and the incidents occurred at the time when the German emigrants came among us to found the now flourishing colony of New Braunfels, in Comal county, on the Guadalupe, in Texas. We have been brought recently to the practical consideration of the question of the advantages and disadvantages of exile and expatriation. A people who have watered their land with their own blood, as the Southerners have done, understand something of a national feeling, something of *amor patriae*, something of instinctive clinging to fatherland. We have wept with our own exiles, we have weighed the probabilities of that suffering for our individual selves. It is no longer a glance of icy, calm indifference that we cast on the heavy, creaking emigrant wagon as it creeps, crowded with living freight, slowly past our doors. If we have brought nothing else out of this fearful crash of battle, we have gained memories, pride, nationality, self-reliance, energy, endurance, fortitude, patience, sympathy, and a broader humanity. These are valuable treasures for any people. Our souls have been stirred to their very depths, and all heroic qualities in us have been developed. Now we, who have had our exiles, feel with the exiled, whether driven forth from native soil by political trouble, or by "the stings and arrows of outrageous fortune." It was, perhaps, some such thoughts as these, that forced the tears from our eyes, and made our heart

throb painfully as we read Gutzkow's simple drama of "Liesle." Gutzkow says in the preface :

"An artisan, for whom the fruits of industry will not ripen, determines to go to America. His wife, always before affectionate and true, cannot persuade herself to follow him thither. I seek the explanation of this enigma in the fact, that I set the home love in her soul at war with the natural longings for her husband's presence ; secondly, on account of Suabian melancholy. * * *

* Swiss home sickness and Suabian stubbornness need no explaining. * * * Expatriation, in order to make one's self free, is truly more stubbornness and egotism than heroism. Because, if one strives for freedom, for whom should it then be but for the universal nationality."

The principal personages in "Liesle" are Bodmer, an artisan, Liesle, his wife, Katherine, their aunt, Fecht, a blacksmith, and some subordinates. The scene opens in Bodmer's house, where Bodmer is at work upon a piece of timber laid across a trestle. It is a pleasant little German house, in good repair, with a bit of garden attached to it. Fecht comes in—

FECHT—(*Treads lightly from behind a small declivity, and calls, whisperingly, looking around.*)—"Pet, Pet."

BODMER—(*Who was standing with his back towards him, wheels around.*)—"It is you, Fecht, so, come in !"

FECHT—(*Drawing near.*)—"A clear atmosphere ! no jealous welcome ! your wife does not begrudge this good hour."

BODMER—"She is behind in the garden, attending to the bees. But, what brings you here ? You return soon from Herrenheim !"

Fecht justifies himself from Liesle's distrust of his companionship for her husband, for he sets skillfully to work to put Bodmer in ill humor with his own condition, with the magistrates of his village, who have partly promised that Bodmer should have the building of a new schoolhouse, which is needed. But Fecht tells him, artfully exaggerating every ignominious circumstance, that he Bodmer, is not to have this coveted honor. He irritates Bodmer, rousing his jealousy, pride, and mortifying his vanity ; then he tells him that he, Fecht will submit no longer to such injustice, but that he is going to "America" Fecht describes his meeting with one of the agents of emigration, and the fair prospects held out to him in the beautiful land of "Texas." Bodmer calls the agent "a soul-buyer," but Fecht's words make their impression, nevertheless. At this moment Liesle's sweet voice is heard from the garden in a Suabian folksong, which we attempt to translate—

"Greet my love, greet my love,
At home, a thousand times,
And say to her, say to my dove,
When first the branches queenly move
In the wind, when we do rove
The lark shall sing these rhymes—
Oh ! say to her, the world is round,
But, alas, I no luck have found,
Unless I spring on a pair new shoes—

But, then, to sit by her I'd choose,
In peace, in peace, in sweet repose,
At home, in Suabia."

Liesle enters, singing, with a basket of vegetables on her arm. She sees her husband's pale face, and tenderly sympathizes in his disappointment. He speaks bitterly. She reproves him, and tells him he has changed very much since he has read the newspapers, associated with Fecht, and frequented the tavern at Herrenheim. She fears his unthankful words may bring some judgment on him. This scene is very natural. At the last they speak of America. She laughs at the letters from "the Grittle," which said that "one found there pure gold lying on the common highway," (we suppose in California,) but when she finds her husband really unhappy, she proposes to him to sell their pretty little house and go to some of the large cities, where his trade would be more profitable—

LIESLE—"We will go to Ulm, to Eslingen."

BODMER—"Farther! farther!"

LIESLE—"To Stuttgart, or even to Angsburg."

BODMER—"Farther! farther!"

LIESLE—"Bodmer!"

A neighbor comes in with some cheerful news of doubt as to the building of the school house, cheers Bodmer, and Liesle goes off singing—

"As the stars in heaven shine bright,
Flowers blooming red and rare,
Still I gaze in her eyes sweet light,
And I kiss her mouth so fair,
Nothing suits me half so well,
Nothing sweeter e'er befell
In the wide, wide world,
In the wide, wide world."

But fate is following fast on the peace of Liesle, even as she sings, an agent of emigration comes in, sent by Fecht, and after an anxious interview, Bodmer remains unsettled and tossed in spirit. We translate some part of this scene, where the agent describes Texas—

AGENT—"It is the command of our association never to persuade any man to emigrate."

BODMER—"Your association! What sort of a company?"

AGENT—"The Texas Company, whose traveling agent I am."

BODMER—"Texas Company! I have heard of it! So, so. Also you are for a Texas Company! Where lies that country sir?"

AGENT—"It is the grazing country, between Mexico and the United States."

BODMER—"I have heard of it. There are many of our people already there. And for what reason have you an association?"

AGENT—"In order to the advantageous settling of this land, and to lighten the evils of emigration, and to aid the helpless in a strange country. To this end, a number of land owners on the Rhine have formed an association. In the richest region of this beautiful wild province of the United States, this association has purchased large tracts of land, and give to any industrious, prudent and well guaran-

teed emigrant, and many thousand German country people have already gathered there fraternally, and enjoy the great advantages of such a well ordered association.

BODMER—"Hum, hum, hum ! And how do you call the large city of that land ?"

AGENT—"Galveston."

BODMER—"See ! see ! That is Galveston. I have often heard and read the name."

AGENT—"The agent at Mayence transports the travelers from Rotterdam to Galveston."

The agent now proceeds to detail all the advantages that an artisan would have in such a new country, and concludes by telling Bodmer that a number of emigrants, "five hundred and sixty heads," were soon to start, and that such a workman as Bodmer would be "a jewel" amongst them. Fecht comes again before the agent departs. The agent tells him Bodmer has not resolved to go.

FECHT—(*To the agent*)—"And he knows all about Texas, and the Lords of the Rhine Bridge at the Black Bear—knows of the holy Union and great chest of advance money in Galveston ; Galveston, on the Bay of Galveston, one hundred miles breadth north, one hundred miles long south ? So close to California, where gold lies in the very dust of the streets ! What !"

It ends in Bodmer's resolving to go. He says, in a kind of frenzy :
"Thou hast cast the lot, God in Heaven. The old days are ended, let the new life come, America ! Sir, make an end of it. Say what is to be done, I go with you."

Fecht rejoices. The agent tells him he will arrange for the sale of his little property, and to expedite him to America as rapidly as possible.

(*Liesle sings in the house her Suabian folksong. Bodmer goes slowly to the door, halts a minute listening, then goes in, saying :*)
"It must be ! America !"

The next scene, between Katherine and Bodmer, is full of progression towards the miserable end of this coil. Bodmer complains that when he told Liesle of the refusal of his neighbors to let him have the work he had set his heart upon doing, that "she sprang up like an otter, and laughed."

KATHERINE—"Laughed ! A pretty laugh, as if her very heart was wrung with despair !"

BODMER—"And when I would have balm upon my wound, and sought consolation in her love for my shamed soul, and said to her, in three days we shall be free, and go to America, she sprang up and ran out into the field as if a tarantula had bitten her."

Katherine reproaches him. Bodmer says to Katherine, alluding to his childlessness, "Our bundle is light enough."

KATHERINE—"You need not say that so often. 'Our bundle is light,' that means because God has not chosen to let the poor thing give you children. Be glad that your obstinacy has not children to oppress. It would curb you very soon, if you would try to take a flock of children out of the nest, out of the wood where they had

been nurtured to gaily sing so sweetly, and lived so happily. You would soon think of others beside yourself. My mother all her life said that the man who had no child was hard ; who has no child lacks something of human nature, like the branches of the vine. Are you going to do just as much as stab Liesle to the very heart because she is unfortunate and has no child. For shame !"

BODMER—"A mother would be an obedient wife."

Katherine reproves him severely for his pride and wilfulness. At last, seeing Liesle approaching, with eyes inflamed from weeping, she entreats Bodmer to pity his wife, and quits them.

(Liesle comes forward slowly, with head sunk upon her breast.)

BODMER—*(After a long pause.)*—"Liesle !"

LIESLE—"What is it ?"

BODMER—"Why did you go away ?"

LIESLE—"I was obliged."

BODMER—"You were obliged ? Did you wish to think it over ? Have you thought it all over ?"

LIESLE—*(Pauses.)*—"Yes."

BODMER—"The strange gentleman who was here is an agent for that beautiful Texas country, and merchant Kranzmeyer, in Eslingen, is to buy our land, and house, and two acre field, so that I shall have money to travel. Is it right to you ?"

LIESLE—*(Pauses.)*—"Yes."

BODMER—"To-morrow I will go to Herrenheim, to the Mayor, and get a license to leave. There will be no difficulty, because I owe the State nothing more now, and I have served out my military duty. I think I shall be able next Sunday, when the whole train passes here, to slip in with it and go to Mayence, to the Rhine with it. From thence it goes to Holland, to Rotterdam, and, in God's name, to Texasland, which is a beautiful country. Is it right to you ?"

LIESLE—*(Trembling.)*—"Yes."

BODMER—"I don't owe a cent on the house ; it is your paraphernal property ; your parents lived in it, we have fitted it up anew, from our own labor ; my hand has cut many a fresh piece of timber for it, so that we can truly say that it belongs equally to us both. For everything, I ought to get at least fifteen hundred dollars."

LIESLE—*(Pauses.)*—"So much ?"

BODMER—"Eh, I think already. But it will have to go. The cost of travel is not trifling ; I do not like to think of two heads pressed together on the very worst deck."

LIESLE—"Two heads ! Are you going to take Fecht free ? You should not do that."

BODMER—"Fecht ! God forbid ! The agent will take him, I believe, as a reward, without expense, because he has collected the whole herd of emigrants in less than a year, and one hundred and seventy-eight heads, instead of one hundred and seventy-six."

LIESLE—"Bodmer, I must tell you something."

BODMER—"What then, Liesle ?"

LIESLE—"Bodmer, I cannot go to America !"

BODMER—"Liesle, don't trifle so!"

LIESLE—"I cannot go to America!"

BODMER—"Go into the house, Liesle! Are you sick?"

LIESLE—"I am not sick, Bodmer. I have thought it all over. I cannot go to America!"

BODMER—"Liesle, don't say that again! I shall grow angry!"

LIESLE—"See here, Bodmer, when you told me just now that you were not to have the building of the schoolhouse, and you must go away, it seemed to me I had a blow on my head, and that I would fall down. I know now you are in earnest. I threw myself prostrate on the earth, in the field yonder, and held my head and tried to think, but I could not think, or seize hold of any thought. But, when I was trying to think, all the time some one was whispering in my soul, 'Thou goest not to America,' and therefore I say to you, Bodmer, I must say it, I go not with you to America!"

BODMER—(*Goes to and fro, controlling himself with a violent effort, at last he turns and stands before Liesle.*)—"Liesle, why not?"

LIESLE—"See you, Bodmer, ask me not why; I can't tell you. I don't know myself. Ah! Bodmer, I can't live long so, I will pray God in Heaven to keep His Almighty watch over you, if you must go; but I shudder Bodmer. Leave thy Liesle, in God's name, go to your great good fortune, Bodmer, in the wide world, in America, but thy Liesle, seest thou—I cannot go to America."

BODMER—"Liesle, you think, perhaps, it would be better so for me. You think you might be a burden to me! But, Liesle, you know already, (*weeping*) you know already how I love you. Liesle! Liesle!"

LIESLE—(*Springs to Bodmer, and clings to him.*)—"Ah!"

BODMER—(*While Liesle clings to his breast.*)—"How could I have any joy in God's world and not have you by me? How could I have a grief and not have you by me? And all the good fortune of the earth were nothing to me unless you shared it. So would I be only wretched and have no joy more in life, without you."

LIESLE—(*Looking up in his face.*)—"Am I so dear to you?"

BODMER—"How I love, my words have told you already! How I love you in my heart, that you cannot see! Even when I am cross to you, my very anger is my love! Because it is only when we feel ourselves truly one, that one can show oneself wild and rash sometimes, when things do not go altogether right. Liesle, when I could leave you—no, no, it chokes me as if I was stabbed! You have thought you were a burden to me. I may go before, that depends, first, to build for the new train, then shall you come to me. Perhaps Liesle, you have thought me hard in this sudden resolve, but I have had this on my life for three years, and in my heart for five. Seest thou, it swarms here in Snabia, since nine years, like a beehive. This swarming has seized upon me. We must go out from here, out into the free land, into the new life, and my wife, my brave, good wife, will go with me, like the sun that laughs there, that there, in the west, comes out golden, and goes down golden."

Liesle goes thoughtfully to one side.)

BODMER—(*After a pause.*)—"Liesle, thou speakest not yet?"

LIESLE—(*Cries out.*)—Bodmer! God in Heaven! I cannot go with you to America!"

The struggle continues between them, each growing more fixed in idea. Liesle exhausts every power of womanly entreaty and heartrending eloquence to induce her husband to forego his resolve. At last she entreats him to "bind her and throw her upon the wagon," "to force her to go." Bodmer says "she must go of her own free will." She cannot—she becomes nearly crazed with grief, she says she feels as if "the arms of her dead mother were holding her fast with an almighty love, and that she never would free her child, her poor child." She cannot say that she will go. Liesle knows that she, a childless wife, who had been even reproached for her misfortune by her husband, would be but a burden to him. She bids him "go to his happiness, but without his Liesle," for her, it only remains "to die."

In the fifth act, Bodmer is about to sign away his property to the agent, Fecht as witness. Liesle comes in with Katherine:

LIESLE—(*Springs forward.*)—"Sign not, Bodmer!"

BODMER—(*Thrusting her back.*)—"Go!"

LIESLE—"Upon my knees I entreat you, Bodmer, sell not thy soul!"

(*Bodmer laughs madly.*)

AGENT—"In truth, you take the thing too sadly, dear woman."

FECHT—"Wife Liesle, you should have more spirit, like old Gretel."

LIESLE—"Go your ways, all of you; come not between me and my husband. Bodmer, with thee alone have I to do. Thou, thou art my whole life! Bodmer, I have only to do with you, let the others be silent when I speak to you."

AGENT—"We can go away."

BODMER—"No! stay; stay with the paper there, sir! The pen; I will soon see." (*Shakes Liesle off from him.*)

KATHERINE—"Obstinate heathen! have some sense."

LIESLE—(*Passionately.*)—"Bodmer! Bodmer!"

BODMER—(*Holding the pen.*)—"What have you to say?"

Liesle entreats him to tell her what takes him to America. He says "that is his own business." At last Bodmer asks, "What in this land was dearer to her than he was."

LIESLE—"Death!"

* * * * *

LIESLE—"Bodmer, for what thou goest, dost thou need me in America?"

(*Bodmer remains silent.*)

LIESLE—"Seest thou, thou art silent, and because I know that it is not for our happiness, but only for thyself, for thy pride, and thine ambition, and restlessness, that thou wilt go, so do I hear a thousand angels saying to me, 'Stay here Liesle, thou must die here.' I cannot go, I have no strength to go. I can only say, go thou, and be happy, but without thy Liesle." * * *

* * "Ah! stay at home, see our beautiful, dear, good land. See the high mountains, where the clouds gather so gracefully when the evening comes! See how the flowers close their little eyes! The millwheel is still, because it is a festival eve! See how the pastures glow reddening; on the church windows the sun's rays fall like purest gold; see the splendor; look around you! (*The herd bells tinkle.*) Hear, Bodmer, hear, the cattle come home. Won't the sound come back to you, won't your heart break when you think of this from home in Haslach? The cows come home from the fields and seek thy door, where thy house was! Bodmer, seest thou, it is all this which holds me with iron hands, and fetters me to the place where I was born, and where I must die, for Bodmer, I cannot go away of my own free will!"

Liesle pours forth a torrent of eloquent pleading, and ends by casting herself on her knees in heartbreaking prayer to God, but Bodmer signs the paper. The scenes are everywhere full of tender beauty and piteous anguish. Bodmer remains fixed in his determination. The house is sold. Liesle packs his chest, lamenting, and stands nearly dead with grief. The emigrant train approaches, singing:

"America! where hope's fountains flow!
The sails are spread, the anchor weighs;
Above our path, thy stars arise,
Receive us kindly now."

"America! receive us then;
Reach out to us a brother's hand,
And thou shalt be to pilgrim men
A fairer fatherland."

A very exciting scene is enacted as the train approaches. Bodmer throws his chest on the baggage wagon, and turns to say farewell to Liesle, who is fainting with exhaustion and grief. Bodmer speaks to her, she answers not, he reproaches her, he entreats her, at last, seizing his knife, he stabs himself to the heart, and falls at her feet, saying: "Nothing moves you, nothing, not even this." "Now I go forth into eternity! You will follow me there, Liesle!" Liesle falls upon his body. Liesle then raises herself slowly up from Bodmer's body, pushes the hair back from her forehead, and sings, wildly:

"America, where hope's fountains flow!
Thou star upon our path—
America! Bodmer, to America!
The anchor weighs, the sails are spread!
Ha! listen friends!—stop—stay—
Bodmer! Bodmer! I follow."

(*She rushes to the high precipice, Katherine trying to stop her*)

I go to America—Bodmer! Bodmer!
I am going with you! stay! stay!
I come! take me with you, to—
—America!"

(*She spreads out her arms and springs from the cliff into the abyss*)

It is impossible to do any justice to the innumerable touches of

feeling and tenderness scattered throughout this play without a literal translation of the whole of it. The subordinate characters are admirably developed. The careless, ne'er do weel Fecht, Katherine, the agent, and Greisfelder, are well portrayed. Every line tells upon and advances to the *denouement*, and it is very well worked out. The drama was founded upon fact. Gutzkow resembles Lope de Vega in his genius, so far as the excellence of plot, the succession of dramatic *coups de theatre*, and the skilful management of subordinate characters can go. The difference in lyric beauty of verse, probably arises rather from the musical adaptation of the natural language, in the Spanish author, than from lack of musical, or rythmical power in the German writer. Like Lope, Gutzkow is a very voluminous writer.

ART. XI.—THE IRISH IN AMERICA.

We were always of opinion that the Irish immigrants who quitted their native country because of the oppression of England, should have strongly sympathized with the Southern States. Those who condemned O'Connell because his political agitation was not sufficiently decisive, especially. The Scotch and Irish rebellions, so called, were both wars for secession; for regaining the separate sovereignty, and recognized representation of each of these States. Perhaps we should appreciate the ardent love of native country that considered the Union much more efficient to effect the liberation of Ireland, than the agency of two separate and independent sections, each embittered against the other, and therefore not willing to co-operate in anything. We have had many evidences during the war, and more since, that the Irish influence in America is for a just and equal reconstruction, and against reducing any State of the Union to the exact condition in which Ireland finds herself, and which many emigrants quitted that country to avoid. The love of country would cover any mere error of judgment, and the memory of Cleburne and the thousand other Irishmen who sanctioned the Confederate cause with their blood, is too dear to us to justify any hostility towards those of their countrymen who took a different view of duty in the contest. Among these last, we may mention Charles J. Halpine, who wrote, under the soubriquet of "Miles O'Reilly," of whom the *Metropolitan Record* says: "To his honor be said, he is never vindictive nor ungenerous; not a line of his can be quoted in favor of harsh measures to a conquered foe:"

"Be generous to the South,
Gentle in deed, and in word of mouth;
For no craven brand on the forehead shines
Of the men who met us in volleying lines,
And fought for the flag of the South."

His "Black Loyalty" is an indignant protest against the madness of the hour:

"The White rebels came with a cheer,
 Their bayonets aslant and aglow,
 While the Black rebels slunk in the rear,
 Assisting (and freely) our foe;
 Phillips, Sumner, and men of that school,
 May click-clatter from morning till night,
 But if Black or White rebels must rule,
 Then, by heaven! count me in for the White.

It would sicken a dog, this vile cant
 That we hear of "Black loyalty" now,
 And I notice the twaddlers who rant
 On the subject were far from the row;
 But since cold has been Lee's latest gun,
 And since Johnston stacked arms after fight,
 We are told "by Black valor we won"—
 'Tis all humbug to laurel the White.

To the Black rebels glory and power,
 To the White rebels chains and disgrace;
 Oh, madness, and worse, rules the hour—
 We are false to faith, wisdom and race!
 To my heart with you, Longstreet and Hill,
 Johnston, Lee—every man in the fight—
 You were rebels, and bad ones, but still
 You share my misfortune—you're White."

The following, written to "honor the brave" of Ireland, is unavoidably applicable to those men of whom he has just said:

"For no craven brand on the forehead shines
 Of the men who met us in volleying lines,
 And fought for the flag of the South."

The *Record* says: "Honor the Brave" is a noble vindication of the undaunted men who, through good and ill, keep the flag of Ireland flying, and seal with their blood 'their fealty to a trampled land:'"

HONOR THE BRAVE.

"Honor the brave who battle still
 For Irish right in English lands;
 Nor rule except their quenchless will,
 No power save in their naked hands;
 Who waged by day and waged by night,
 In groups of three or bands of ten,
 Our savage, undespairing fight
 Against two hundred thousand men.

No pomp of war their eyes to blind,
 No blair of music as they go,
 With just such weapons as they find,
 In desperate onset on the foe.
 They seize the pike, the torch, the scythe—
 Unequal contest—but what then?
 With steadfast eyes and spirits blithe
 They face two hundred thousand men.

The jails are yawning through the land,
 The scaffold's fatal click is heard,
 But still moves on the scanty band,
 By jail and scaffold undeterred.

W
 and
 and

A moment's pause to wail the last
 Who fell in freedom's fight, and then,
 With teeth firm set, and breathing fast,
 They face two hundred thousand men.

Obscure, unmarked, with none to praise
 Their fealty to a trampled land;
 Yet never knights in Arthur's day
 For desperate cause made firmer stand.
 They wage no public war, 'tis true;
 They strike and fly, and strike—what then?
 'Tis only thus this faithful few
 Can front two hundred thousand men.

You call them ignorant, rash, and wild,
 But who can tell how patriots feel
 With centuries of torment piled
 About the land to which they kneel?
 And who has made them what we find—
 Like tigers lurking in their den,
 And breaking forth with fury blind
 To beard two hundred thousand men.

Who made their lives so hard to bear
 They care not how their lives are lost?
 Their land a symbol of despair—
 A wreck on ruin's ocean tossed.
 We, happier here, may carp and sneer,
 And judge them harshly—but what then!
 No gloves for those who have as foes
 To face two hundred thousand men.

Honor the brave! Let Eng. and rave
 Against them as a savage band:
 We know their foes, we know their woes,
 And hail them as a hero band.
 With iron will they battle still,
 In groups of three or files of ten,
 Nor care we by what savage skill
 They fight two hundred thousand men.

We copy the following Southern lines, written in the same spirit,
 and in response to the sympathies of all hearts that love liberty
 and respect courage:

WEARIN' GRAY OR GREEN.

My father lost his footin' for a little accidint;
 But it was not for the famine, and it wasn't for the rint,
 Nor for wrongin' man or maiden, nor distillin' ov poteen;
 Then what the devil was it—but for wearin' of the green.
 So I followed his example, and I found myself at war
 Wid the rebels and the nagurs, but I dun'no what it's for.
 So I listed under Corcoran, an' it's naturalized I've been—
 For fightin' comes as natural as wearin' of the green.

The Union was the stronger force, wid money for to spend,
 And so the rebs were bate, ov coorse, and conquered in the end.
 But I got completely bothered, as I wint from scene to scene—
 Till I scarce see the difference betwixt the gray and green.
 I'd no doubt the "curse of Cromwell" was on all those who rebel,
 That rebs must go, like Irishmen, "to Connaught or to hell."
 I looked to see the conqueror in harsh conjunction join
 The falsehood of Drogheda to the butchery of the Boyne.

But honor to America, she did not treat her foe
 As England trated Ireland not many a year ago.
 No chains are put on Southern limbs, no handcuffs on the soul,
 And despots sicken at the sight of millions on parole.
 Life life to Andy Johnson ! when his land is all at ease,
 May he visit, in her island home, the sovereign of the seas.
 May he offer her his counsel, how old Ireland may become,
 As happy and as grateful as the land he left at home.

May he say : " You wrong that country, which has bled for you and yours,
 And has borne your conquering banner to distant seas and shores.
 By her aid your honored Majesty sits lofty and serene,
 And many a heart that bled for you had worn the rebel green.
 There was Wellington, who led your hosts in Spain—at Waterloo,
 With many another Irishman, less famous yet as true,
 Where her soldiers and her statemen have never flinched nor fled.
 Will you never trust the living, when so true have been the dead ?

Go take unhappy Ireland ! where she sits upon the turf,
 Raise her to the throne besides ye—as a sister, not a serf ;
 And the blood and breath of millions will be yours, oh gracious Queen !
 And your memory will be garlanded with wreaths of every green.
 And when God makes up his jewels with immortal gems so rare,
 He will frame a crown of glory fit for seraphim to wear ;
 In the centre of that circlet will thy noble heart be seen,
 Surrounded by the rubies, and the Emerald so green. "

Oh, the prelate's robes are spotless lawn, the king in diamonds shine,
 And to punish men's opinions they proclaim a right divine ;
 But God will sit in judgment where man cannot intervene,
 And he'll ne'er condemn an honest heart for wearin' gray or green.
 Now in generous conjunction let us join the red and blue,
 May they wave above humanity, and lead the brave and true,
 The rainbow bright will span the earth, and on its arch be seen
 The prism hues of liberty—the red, the blue, the gray, and green.

ART. XII.—THE CHICAGO LAKE FRONT.

[From the Chicago Tribune.]

Our existing harbor accommodations are grossly inadequate. Every available foot of room in the south branch of the river is occupied. Three-fourths of the north branch is occupied, and even now painful and costly efforts are being made to deepen this portion of the river in places where their is hardly water enough to float a gosling. When slips have been constructed, valuable real estate has to be sacrificed to make room for them. The expense of towage and the nuisance of bridge opening are a perpetual drawback to the use of the river at a considerable distance from its mouth. There is no room for vessels to anchor in the stream. After discharging a cargo they are pushed off the dock, and sent floating down the stream in search of some place to tie up, and in a majority of cases, they become involuntary trespassers upon other people's property. Vessel-owners in distant ports, agreeing to deliver cargoes in Chicago, always take into account, the place where it is to be unloaded. They have one price for the main trunk of the river, another price for the south branch, and another price for the north branch, varying according to distance and the cost of towage. In short, we have outgrown our harbor. We must have more room, and we must go into the lake to get it. We must follow the example of Liverpool, and go into the open sea and there construct the docks which are to accommodate the future commerce of the Northwest. The Illinois Central Railroad Company have already shown, on a small scale, what can be done in the

deep water on the south side of the river; Mr. Ogden and his associates what can be done on the north side. Necessity has compelled the construction of these docks, and necessity will compel the construction of more. It is our opinion that the present generation will see the lake front occupied with shipping as far south as Twenty-second street. This was the limit fixed by the projectors of the "Chicago Harbor Improvement Company" two years ago, and they were not far wrong in their calculations.

What kind of a bill can be passed which will accomplish the object sought, the building of a lake harbor, and be liable to the fewest objections and abuses? As between the Illinois Central Railroad Company and a private dock company, we decidedly prefer the former. They have the position, the experience and the capital to make such a harbor. They can do it. A private harbor company would finally become a football for Wall street. The amount of money needed for such an undertaking goes up into the millions. The capital to be expended in sea walls, slips, filling up etc., is not here. It must be obtained from the East or from Europe, where the rate of interest is low. By and by the harbor would be owned there, just as the railroads are now—just as the stock of Mr. Ogden's company is now. It would be at best a doubtful and hazardous undertaking. The Illinois Central Railroad Company have the facilities and the credit necessary to make the work a success from the start. They can furnish the harbor with immediate and remunerative employment. With a private company the case would be different, especially if the railroad should assume an attitude of hostility toward it.

The clause inserted in the pending bill, which makes the rate of wharfage and dockage subject to the control of the State, is a wise provision, and goes far to relieve the measure of the character of a monopoly. The seven per cent. clause is not, as some people represent, a humbug. The charter of the company requires the payment of seven per cent. of the gross receipts "from the road and its branches" into the State Treasury. There is no clause in it which would require the payment of seven per cent. from its leased lines in Iowa, or its Dubuque bridge, or its grain elevators, or its steam tugs, or its wharfbots, or its harbor. Therefore, the seven per cent. clause in the pending bill has a substratum of fact to rest upon. Probably any price which might be fixed upon the property now would be deemed inadequate ten years hence, and ridiculous twenty years hence; while on the other hand the seven per cent. will grow as fast as the property grows.

ART. XIII.—NATURAL THEOLOGY.

BY PAUL A. CHADBOURNE, M. D., L. L. D., PRESIDENT OF THE UNIVERSITY OF WISCONSIN.

Nothing is more interesting in the history of science, than the unexpected relations discoveries reveal. To the scientific, many of these relations are of so frequent occurrence that they excite no surprise. It would seem that experiments with the prismatic spectrum could have no relation to chemical analysis; yet the prismatic spectrum reveals the most astonishing results in relation to chemical constitution of bodies, where chemical reagents are utterly inapplicable. Who could imagine that the chemist, laboring in his laboratory, or the naturalist exploring the fields of nature, were laying the firmest foundations for a belief in the inspiration of the Bible? Yet so it is. Science has not only entered, by its influence, the workshop of the mechanic and artisan, but affords the most powerful argument at the command of the theologian.

President Chadbourne's "Natural Theology" consists of twelve

lectures, delivered before the Leroel Institute. The subject is treated in a strictly scientific manner, which make these lectures unique among works on this subject. It is for this reason that we call the attention of scientific men, as well as of the theologian, to his work. He assumes different grounds, and uses entirely different material from any of his predecessors. Some of his generalizations are not only new, but are of the most interesting and striking character, and they will receive, as they deserve, the unqualified approbation of the scientific world.

Paley performed a good work in his day, and was in advance of his age. His facts are well stated, and his deductions forcible; but he fails, as he necessarily must, to interest the man of science of the present day. The "Bridgewater Treatises," give an elaborate exhibit of the sciences at the time they were written, and abundantly prove, what they were intended to prove, the "wisdom, power, and goodness of God." They fail in not covering the whole ground of Natural Theology, as rightly defined, and also fail in making any telling arguments on points important to be established, when the materials were in their hands for doing it. To establish the wisdom, power, and goodness of God by physical creations, is but a small portion that may be established, when not only the physical, but the intellectual, moral, and religious relations, of men, are considered.

President Chadbourne supplies this deficiency in a most satisfactory manner. Man, as a creation, is a physical, intellectual, emotional, and moral being. All these endowments must be put in the natural world, and if not, there is a melancholy omission in the supplies for his natural demands. To show that there is no such deficiency, but on the contrary, a perfect conformity of all these endowments to other creations, is the main province of Natural Theology. The following propositions include the scope of our author's argument:

"1. The existence and attributes of God."

"2. His relationship to us, and the results that flow from that relationship."

"3. The necessary failure of nature to answer fully all questions demanded by our intellectual and religious desires."

"4. Proof from the physical universe and the spiritual constitution of man, that the Bible is the work of God."

These topics exhaust the subject. They are a complete synopsis of natural religion, and the consequences that flow from it. To illustrate and enforce these points, our author addresses himself.

The first lecture is introductory, discussing the *origin and destiny* of man. On the first point he draws the conclusion "that man and all creatures in the universe are the work of a personal being." The other point is the idea, that runs through the whole discussion, and forms the connecting thread of all the material used.

The condition of the investigation of natural religion is briefly and fairly stated, "that an honest desire to arrive at truth on the subject of our highest interest should possess every heart." The case is beautifully and justly stated in the case of children, who, on coming

to the years of reason, should find themselves in a palace fitted up by their father, who is absent, for their occupation. How they would reason in regard to its construction and arrangements, what convictions the whole would convey to their minds as to the interest and desire of their absent father.

Further, supposing a document to be left by their father, explaining more fully his will concerning his children, and revealing to them higher interests, pointing out to them the results of their own actions, the structure of their dwelling, and its conveniences. This, together with the written testament, would convey to their mindst he true character of their father and his intention towards them. These sources of knowledge would be to them of the highest interest, and their conjoined influence could not fail in producing right impressions, mutually harmonizing, as they would ; as there could, of course, be no conflict in their teachings, both, coming from the same hand.

So it is with the works and word of God. Perfect harmony prevails, both teaching the same lessons, and where one is wanting the other supplies the deficiency. The difficulties to be met are next discussed :

1. The subject is thought to be hackneyed.

2. The impossibility of presenting the proof in all its fullness.

To do this, the author must present all the details that have borne on his own mind in his investigations, which is simply impossible. The author will illustrate this in the following passage : "He can present the great outlines of proof, while with the mental eye, he can himself follow the strata deep beyond the reach of mere sight, as surely as though they were open to every observer."

A third difficulty is : the familiarity of the objects of nature fails, on this account, to excite the emotions or to convince the understanding as they ought. The author closes this lecture with the following eloquent passage. "We reverently enter the Temple of Nature, that we may there read the character of the builder. Its walls, we believe, were not piled by chance ; its cunning adjustments are not the sporting of the elements. From foundation stone to topmost turret, we hope to read our Father's wisdom, power, and love. We hope to open the ark of the testimony and find His own seal stamped upon His written word. We hope to hear Him speaking with one voice from Nature and the Bible, declaring Himself the Great First Cause, the Creator of the world, our Creator, our God, and our Father."

The second lecture opens with the following announcement of the scope of the author's argument : "We shall first attempt to show that provision has been made in the material world for every organic being on the globe, including man, considered merely as a physical being, and that this provision is of such a nature as to show the contrivance and oversight of a personal Creator. In the second place, we expect to show that no adequate provision is found in the material world for man's highest nature, so that a written word is absolutely demanded to make as full provision for man as has been

made to satisfy the capacities and desires of every other creature. And in the third place, the question will arise, how far the Bible can claim to be from the Author of Nature, by providing the information which man's highest nature demands, and thus becoming just as natural a provision for man's higher needs, as the sunlight and atmosphere, and fruits of the earth are for his physical wants?"

It will be perceived that Dr. Chadbourne, as we have before intimated, gives a wider scope to Natural Theology than is usually assigned it. He not only deduces the "power, wisdom, and goodness of God," but extends his deductions to the spiritual demands and responsibilities of human beings. The attempt to prove anything from nature, in regard to God, without the Bible, is labor in vain. The Bible and nature are correlatives, and neither can be complete without the other. It is only as one accords with the other that the full force of either is produced. It is by this accordance that Natural Theology becomes a power, and the Bible an established fact, as the inspired word of God. We are accustomed to lay much stress on the miracles and prophecies of the Bible to establish its divine character. But these, one or both, convey no proof of the character of the Bible, or that it came from God at all. A miracle proves nothing but a superhuman power. It may be that of an angel, or of Satan, for aught we know to the contrary. The Jews accused our Savior of working miracles by Belzebub, and so, as simple miracles, they might have been, had they not been in accordance with standards which God only could erect. The immovable foundation on which the Bible rests, is its harmony with God's creation. The material structures, the moral and intellectual capacities, and demands of man. Did it contradict, unmistakably, any one of these, all our logic would be unavailing to establish it as the word of God. In this accordance, they mutually strengthen each other. As the magnet, and iron, mutually react to increase each others intensity, so the Bible and the creations of Deity give double power to each. Dr. Chadbourne has done a good work in giving force to inspiration, and vitality to natural constitutions as he has done, thus widening the field of investigation.

The idea of a first cause is discovered in detail. "It is impossible for us to believe that anything is produced without a cause—that anything can begin to exist of itself." Matter might be eternal. There was a time, however, when nothing but matter and physical forces were existing. This every geologist admits. There was no life. How was the vital power added to matter? Not certainly by physical forces, as they are all struggling against it. Life holds its rule only by holding in subjection these forces. When it yields its empire over matter, these take control and destroy all it had built up. We are then driven to the conclusion that a power over and above all created things, placed the vital force in action, either endowing simple cells with the force to develop specific forms of plants, and animals, or creating the plants and animals and giving them vitality in their more or less perfect state. The force of either of these alternatives is the same in establishing the existence of a

personal creator. This argument, it seems to us, is conclusive.

"The adaptation of our bodies to our use, as well as the adaptation of the world to them," next demands attention. We are made to perceive, and our bodies are perfectly fitted for the conditions in which we are placed. They are the tenements which we occupy. They are fitted for our use and are adapted to fit the conditions of the physical world. The eye is fitted for the light, and as an instrument, is most aptly fitted for our use. So of all the other senses, acting "as means of establishing relations with the external world."

The third lecture is occupied in illustrating the "adaptation of the lower animals to the world by structure, function, and instinct." Each animal is provided for, as an animal, and also a particular animal, suited to its particular condition. There is not a case found in the whole range of Natural History where there is not a perfect adaptation between the wants of the animal and the circumstances under which it lived. "No kind," says the author, "can be found so apparently abnormal in form as not to show wisdom in its fitness for some particular condition in life." "That five hundred thousand different kinds of beings could be perfectly provided for, so that the ingenuity of man cannot suggest a single improvement in reference to any one of them, not only proves design originating from a high intelligence, but leaves no plausible ground for any other explanation." This lecture is also of great interest, especially in relation to instinct. This power, or faculty, is certainly one of the most wonderful provisions of nature. That an animal, without intelligence, should work with mathematical precision, is passing strange. As the author says, "the wisdom is not in them. It must be in Him who implanted the impulse." It is God's work. We see His direct power in every instinctive action. For there is no second cause, so far as our comprehension extends, that throws any light on its operation. We see the direct application of creative power.

With many illustrations of "special contrivances," we have in the fourth lecture the consideration of the interesting subject of the relation of "pain and death of the lower animals," with the amount of enjoyment secured by this arrangement. Ages before man appeared on the earth death reigned over the brute creation. The points made by the author are :

1. That by death among the lower animals, a greater amount of enjoyment is secured to them as a class than could be secured without it.

2. In disease, and all methods by which death is produced, no case can be pointed out in which suffering is plainly inflicted for its own sake,

On these two points, we have the following remarks : "If it can be shown that happiness among animals is in excess of misery, and that there are provisions made for relieving pain and curing disease, then the burden is on those who doubt either the existence, or perfect benevolence, of the Creator, to show that there is not a wise, and good reason for the existence of so much pain and suffering as is found in the world.

"We see plainly exhibited in the arrangement of the vegetable and animal kingdoms, a design to keep the species balanced, so that no one shall gain exclusive possession, and thereby become destructive of the whole. We do, sometimes, see this excess of some one species prevailing to a limited extent, and we always find disaster to some interest result. The grasshopper, and the cotton worm often lay waste districts. But their excess is a preventive to their own reproduction, from the scarcity of food necessary to their perfect development. The interest of each race, if we may so express it, is consulted when death comes in to limit their excessive multiplication. As the author expresses it, "we have the enjoyment of young animals cut off in a moment, instead of the enjoyment of one animal living a much longer time."

The fifth lecture is devoted to the "adaptation of plants to the world." We should fail in the attempt to give any just exhibition of this interesting lecture. The points made are numerous, and well illustrated. There is but one point to which we can direct the reader's attention, that of the "fertilization of plants by insects." "The structure of the flower, and that of the bee, are often adapted to each other, as much as the key to the lock." "When we see thousands of species of plants, of varied forms, with their parts so arranged as to secure fertilization by the aid of insects, and the drop of honey placed in the flower to attract them, we not only recognize design, but in a provision of such varied nature, the idea of chance is excluded."

The agency of insects in the fertilization of plants has never been properly appreciated, and Dr. Chadbourne has done a good work in bringing it out in a popular scientific work. It might be greatly extended, and we trust the attention thus called to it will lead his readers to make observations in this direction.

"Production of varieties, and their final cause," is the subject of the sixth lecture. This is a new element in Natural Theology. There is no subject that is more interesting to the scientific world than the varieties of species in the vegetable and animal kingdoms. Dr. Chadbourne confines himself to the cultivated vegetable and domesticated animals, and does not enter the lists at length in the discussion, yet we are not left in doubt as to his opinion. He makes some strong points against the development theory, as it is called. This theory assumes that all living beings have been developed from a pre-existing species. Dr. Darwin expresses the whole theory in the following sentence: "All living forms of life are the lineal descendants of those which lived long before the Silurian epoch." (Darwin's "Origin of Species," page 423.) Dr. Chadbourne considers the species permanent, but for good reasons may vary within certain limits, and for certain purposes. He says: "Variation being granted, we believe it can be shown that it is not accidental, but that it works for a definite purpose, and within prescribed limits." This purpose is thus declared: "All variation from original forms is not, in general, for the good of the object in which it occurs. Much of the variation in both kingdoms has special reference to

man as an intellectual and moral being." These variations take one of two directions, the line of beauty or the line of utility. The rose is cited as an example of the beautiful. The stamens become converted into petals, thus gaining beauty, but at the same time destroying its fertility. On the other hand, the apple and the peach form luscious fruits, with no gain to the plant, but great gain to man, by whom these varieties are produced. These variations, argues the author, are, as far as we know, unlimited, and hence a broad field is opened for the intellect of man to gratify, by its action, his taste for the beautiful, and to furnish him with the most healthful and pleasant gratification of taste. Who can say that the most beautiful flowers have been produced, or that man has gained the most luscious apple, peach, or pear? "There is thus laid in this law of the animal and vegetable kingdoms the secret condition of a continued progress in man. The possibility of better forms, is ever saying to him, 'Onward! upward!'" We have given but a poor exhibition of this interesting lecture, but enough, perhaps, to give the drift of the author's argument and the conclusions he establishes. These capabilities of variation have, as their final cause, the intellectual development of man, and at the same time administer to the most imperative wants of his nature.

The seventh lecture is occupied with the "chemical elements and their mutual relations." There is no department of nature in which the common observer would find less appearance of design than in the chemical structure of the globe, and yet there is none that reveals more of the wisdom, power and goodness of the great Creator than this. Dr. Chadbourne has placed this subject in a most impressive light, and has made generalizations and deductions of the most interesting and important character. The general idea is that "the earth is a huge conglomeration of matter, supporting plants, and animals, and that it might have been very different from what it now is, and still support them. But it is not so." Of the sixty odd elements of which the earth is composed, a deficiency, or excess of any one of them, from what they in fact are, would have rendered life impossible. Had oxygen been in excess of what it now is, combustion would have been uncontrollable, and life excessive and transitory. Had hydrogen been in excess, water would have been increased and the air deprived of its vital fluid. The soil, which we are apt to consider as made up of sand and clay, must contain quantities of other materials, or vegetation could not exist, or animals could not live upon it. Potash, iron, lime, and phosphorus must be in every soil where plants can grow. Phosphorus must be in the bones, brain, and nerves of animals; lime in the bones; iron in the blood. "Had any one of the abundant elements, oxygen, hydrogen, carbon, calcium, phosphorus, or potassium been wanting, the earth would have been a dreary waste. Any essential variation in quantity, or distribution, or chemical power of any one of these would have changed the face of nature."

The leading elements are discussed in their various relations and

actions, showing the design in their quantities and properties for the best interests of the living world.

The eighth and ninth lectures are devoted to the discussion of the "provision made for the intellect of man." We can give but a glance at our author's treatment of this interesting branch of the subject. In relation to minerals, the author says: "There is engraven within the very structure of all the minerals of the globe a story—an autobiography, that unrolls the more the longer we gaze upon it." "So beautiful, and so complete, is this language, so valueless, except in relation to man; so perfectly adapted to him as an intelligent being, and through his intellectual being becoming such a means of physical and intellectual enjoyment, that we seem to hear the voice of God speaking from the silent rocks more audibly than among the higher forms of animate nature."

The crystals are beautiful, and could have been produced for no other purpose than to gratify an individual above the mere animal—a being endowed with intellect and a sense of the beautiful. They have their secondary forms to give infinite variety to their native, primitive beauty. In analyzing these beautiful forms, we find them governed by fixed laws in all their endless variety, subject to mathematical expression, the full development of which "needs for its completion the power of the whole human intellect." "When we consider," says the author, "the beauty of form, the brilliancy of lustre, and the richness of color, and the unchangeable nature of the precious stones, we can have no more doubt that they were made in reference to the intellectual and emotional nature of man, than we have that the fruits of the earth were made for food."

The coal for fuel and light, the metals for their thousand applications, presuppose a being endowed with intellectual powers by being deposited in the condition they are. To all beings not thus endowed, they would have no importance, no meaning. To man they become of extreme importance, and convey a lesson of the adaptation of the materials in their native condition to the intellectual capacity of man.

The tenth lecture is mainly devoted to the provisions in nature for the "emotional nature of man," especially the love of the beautiful. The love of the beautiful is one of the most prominent characteristics of man. It is founded in his nature, and abundant provision is made for its highest gratification. Nature administers directly to this faculty; and just in proportion as art conforms to these standards of nature, is it successful in giving pleasure. The poet and the orator are largely indebted to natural scenes, and objects, for the most pleasing productions of their fancy and imagination. The Bible, of all books, draws most largely for its most sublime and inspiring passages, from natural objects and natural phenomena. The painter and sculptor draw inspiration from nature, and just as they harmonize with the living animal, or natural scene, do they entrance the beholder by the pencil or the chisel. To be unnatural is to be disgusting, or contemptible. Of all the organs of sense, fitted to receive pleasure by perception of the beautiful,

none has been arranged so nicely, or so strictly in accordance with mathematical accuracy as the ear. It is no chance combination of sounds that please and enrapture. It is the nice adjustment and distinction of sounds that inspire a lull by their melody, or enchant by their blending harmony. The organ itself, the aerial medium, the vibrating body, must all be adjusted with the surest accuracy, which could only be accomplished by an intelligent author, and that for no other end than to give pleasure to an intelligent being.

The clouds, the crystals, the ever varying sky, are adduced as the unending variety of beautiful objects for the eye of man. Organic beings occupy different grounds from the inanimate. There was a time when they were not. But from the earliest period of zoic time, down to the time when man became an inhabitant of the earth, the rocks enclose in their enduring strata the greatest profusion of beautiful objects for our research and admiration. The plants and animals, now existing in their infinite variety of form and beauty, offered exhaustless series for our constant delight. Beauty in form and coloring, that could have no end to accomplish but to administer to this fundamental part of our nature, the love of the beautiful, and scattered with the most lavish profusion on every hand.

We now come to notice what we conceive the most important lecture of the course. The moral nature of man, and the Bible as adapted to it. We conceive the most convincing arguments for the divine inspiration of the Bible, is that drawn from its exact adaptedness to the condition of man. Could there be pointed out any direct teaching of the Bible in conflict with the moral nature or highest interests of man, it would greatly weaken, or entirely destroy, all other arguments that might be adduced in support of the divine origin of the scriptures. The creator of the moral powers must have fitted his teachings, if he gave any, to the constitution of those powers, with as much conformity as he fitted the air to the ear, or the light to the eye, to produce hearing and seeing. This conformity, Dr. Chadbourne shows, has been fully accomplished. We find within us a conscience; the foundation of its decisions are always the same in the civilized and the savage. The Bible comes in and accords with the decisions, but modifies, or changes, in special cases, the grounds of its decisions. For the right and the good it always decides; but when men have mistaken, in its application, in calling evil good, or good evil, it lays open the true relations and leads us in the way we knew not of.

Another adaptation to the natural constitution, is in its revelation of a future state. "All other beings," says our author, "on this globe complete the cycle of their existence and rise as high as they are fitted to rise. But man, in this respect, is a failure; the machinery is out of joint, or rather, if this world is his only home, it never was properly adjusted. There is no possibility of his rising so high, in this world, as to satisfy his intellectual being. Man longs for another life, and shudders at the prospect of oblivion." Here the Bible comes in and fills, by its revelation, this great chasm in man's moral and intellectual nature, and brings "life and immor-

talities to light." "If," says Dr. Chadbourne, there is a Creator of man, who is a lover of truth, then man must be immortal." Grant a future life, and the great enigma of the present life is solved—man stands complete, the last and noblest work of God."

Thus the work of the author is complete. The physical world has been shown to be in exact accordance to the physical wants of man. His intellectual powers are nicely adapted to his surroundings; his emotional nature is abundantly supplied with means of gratification; his moral nature is supplied with a revelation, where physical creations could afford no sure guide, and his natural longings for continued existence are fully satisfied in the revelations of the life beyond the grave.

We know of no book that, in the same compass, contains so much that our students stand in need of, as is contained in these lectures. It presents Natural Theology in its true light, and in full extent, and we are acquainted with no other book of which we can say the same. It is a subject of vast importance to all, especially to our liberally educated men. With the teachings of this book firmly impressed upon them, they would go forth from the halls of learning armed with weapons either to repel the insidious attacks from without, or suppress incipient suggestions within, against our holy religion. Its importance cannot be over estimated as related to our enjoyment here, or to our hopes for the future. Its intimate connection with Divine Revelation, gives it superiority over every other scientific inquiry.

ART. XIV.—THE CIVIL SERVICE.

[From the Baltimore Statesman.]

We have taken occasion more than once to express our entire concurrence with the principles of Mr. Jenckes' bill to reorganize the Civil Service of the country so as to make capacity and merit the sole qualifications for office. The reasons which commend this measure are so apparent that it is unnecessary to repeat them in detail. Their abstract force certainly has not been lessened by the daily experience of members of Congress and Government officials at Washington. Thousands upon thousands throng the capital—greedy and persistent office-seekers, with pockets filled with letters, petitions, recommendations and certificates of partisan service well performed. From almost every district, in every State, from the banks of every river, even from the shores of the far off Pacific, this army has gathered, repeating the old cry—"To the victors belong the spoils." To enable the President to make removals, and thus insure vacancies to be filled by themselves, they urge the repeal of the tenure-of-office act. Their demands are so loud, their eagerness is so pressing, their pursuit of place and emolument has grown so fierce, that the conviction which members of Congress have hitherto declined to yield to the arguments in favor of reform in the mode of appointments to office, will not much longer be refused.

Mr. Schurz, although understood to entertain the most radical opinions upon every political question, presented a very judicious suggestion, in the recent discussion in the Senate. Speaking of the tenure-of-office law, he declared that "it fails to apply the remedy to the true seat of the disease, which is not in the system of removal, but in the vicious system of appointment;" and he expressed the hope "that after a failure of reform attempted in the wrong direction, we may be led

to attempt a true reform by putting the axe to the root of the evil, and that we may substitute for the existing scandal of the 'spoils' system, a system of appointment on examination of candidates for office, with promotion according to merit, and then of removal only from cause, thus giving efficiency and respectability to the public service and relieving us, in part at least, of the demoralizing curse which we euphoniously call 'patronage.'

This is the precise conclusion which lies at the foundation of Mr. Jenkes' bill introduced at the last session of Congress. It aims to secure competent service in the different branches of official duty; it proposes to appoint only such persons as are qualified for the lower grades of office, and to promote them for merit and fidelity; and its other purpose is to avoid the disgusting and disgraceful exhibitions which attend the quadrennial "wild hunts after office" which commence in full cry upon the inauguration of each new Administration. We are perfectly willing that the Republicans, having now the vantage-ground in possessing the patronage of the Government, shall inaugurate this reform. Let every official, if such be the desire or the necessity of the Administration, be unexceptionable in his identity with the principles of the Radical party, but let him be only appointed to office after a competitive examination shall have demonstrated his fitness and capacity. The reform will be so important in all its results to justify any hesitation because of the political opinions of those who will first derive benefit from it. With a fixed and established Civil Service system, many of the worst features of our elections will disappear. If office is not to be the reward of party success, the probabilities will be greatly increased that popular elections will be more decisive of principle and will more directly reflect the judgment of the public mind upon questions of real importance. Indeed if, as would have been the case, had a system of official service tried and experienced officials had been sent to the Southern States, in the place of the wandering adventurers and office-seekers who were placed in positions of authority there, there can be little doubt of the advantage which would have accrued to the people of that unfortunate section. The mere habit and training resulting from continued and experienced public service, would have proved most efficient in establishing something like good government, in place of the irresponsible and oppressive authorities—military and civil—which have so seriously retarded the material and political restoration of the South.

The present appears to us the most propitious time for the inaugurations of this much-needed reform. Let it not be postponed, as Mr. Schurz proposes, to the next session of Congress, but be effected at once. We can fancy no more amusing spectacle than the announcement to the scores of place-seekers, now at Washington, that they must undergo the test of a severe examination. The rapidity with which they have thronged to the footstools of power would be rivalled by the hurry of their departure. Carpet-bags and paper collars would soon disappear, and a millennial quiet succeed the anxious, restless, persistent and turbulent crowd, from whose importunities, according to all accounts, no portion of the capital is free—even the privacy of the fireside and the sacred precincts of the churches affording no security against their inroads.

ART. XV.—FOX AND WISCONSIN RIVER IMPROVEMENTS.

[From the New Orleans Republican.]

A convention of capitalists, speculators and politicians, in which the two last named classes were by far the most numerous, met at Prairie du Chien, in Wisconsin, to consider measures to secure aid from Congress for the improvement of the Wisconsin river, with a view to establishing navigation by water from Lake Michigan to the Mississippi river. The whole of the proposed improvement lies within the limits of Wisconsin, and both the Fox and Wisconsin rivers rise and discharge their waters in the same State. Neither the Illinois river nor any of its tributaries is involved. The following is a correct description of the topography of the route:

The Wisconsin river having its rise in the northern part of the State of Wis-

consin, runs southerly until it approaches the Fox river, turns abruptly south-westerly and running in that course one hundred and eighteen miles, empties into the Mississippi. The Fox river having its rise in the southern part of Wisconsin runs northwesterly until it approaches the Wisconsin river, turns abruptly northeasterly, and running in that course, one hundred and sixty miles, through Lakes Puckawa and Winnebago, empties into Lake Michigan at Green Bay. The divide, or portage, at the nearest point of approach, separating the water putting into the Gulf of Mexico from the waters putting into Saint Lawrence, is a level sand prairie, without rocks, and in width, one and one half miles. The Wisconsin at the portage is at the summit level. It is about seven feet higher than the Fox at the portage, about two hundred feet higher than Lake Michigan, at the mouth of the Fox, and one hundred and sixty-nine feet higher than the Mississippi at the mouth of the Wisconsin.

Already a canal at the portage connects the Wisconsin and the Fox, and a slack water communication extending from the portage to the Green Bay, a distance of one hundred and sixty miles, overcomes by locks and dams the fall of two hundred feet, and connects the Wisconsin river with Lake Michigan. The Fox river, from its mouth to Oshkosh, on Lake Winnebago, has a lower water channel of about four feet, and from Lake Winnebago to the portage of about three feet. At stages of high water boats of three, four and even five feet draft, have passed from Lake Michigan up to Fox river and down the Wisconsin into the Mississippi river. As late in the season as June, boats of three hundred tons burthen have made the passage. In stages of low water the Wisconsin cannot be navigated on account of the drifting sands.

It is proposed that the General Government be urged to improve the navigation of the Wisconsin river from its mouth to the portage, so that boats of five feet draft may pass with facility in the lowest stages of water. The total distance is one hundred and eighteen miles and the fall one hundred and sixty-nine feet.

The works of improvement now in operation upon said river are owned by the Green Bay and Mississippi Canal Company, and chiefly extend from the portage to the mouth of the Fox, a distant of one hundred and sixty miles, and therein overcome a fall of two hundred feet.

It is understood that this company will make the navigation of the Fox river as good as the Government will make the Wisconsin, so that the project before us is narrowed down to the improvement of one hundred and eighteen miles, of river navigation.

A careful scrutiny of the above will show the experienced steambotman that the most hopeful results likely to be obtained would be rather unsatisfactory. A depth ranging from three to five feet in a stream, having a fall of two hundred feet in one hundred and sixty-nine miles is hardly enough for navigation. And when we add to this that the Wisconsin river is infested throughout its entire course with innumerable moving sand bars, the case seems to be one of peculiar difficulty.

Although this subject has been brought to the attention of most of the people of this State it is by no means a modern discovery. At least twenty years ago the State of Wisconsin granted a large quantity of swamp lands to the Fox and Wisconsin Improvement Company in aid of the enterprise. It was for many years a famous political job, out of which the Wisconsin Democracy made capital. But as there was obviously nothing to be expected from the completion of the improvement, it has been left in the hands of politicians, who only work it to fill in time.

The *Philadelphia Inquirer*, in noticing the Prairie du Chien Convention and its objects, has the following :

There is little difficulty in this country in creating companies for the prosecution of public works where the profits are almost certain. In such cases nobody calls on the Government for assistance. On the contrary, the Government is excluded. It is only in cases where the benefit to certain interests would be great, but the question of profit in doubt, that efforts are made to call upon the Government for aid. The proposed work would no doubt be an advantage to the particular section of the country in the neighborhood of it, but whether it would be of sufficient benefit to the whole nation, as to justify the entailment of the cost on the inhabitants of all parts of the United States, may well be doubted. The conven-

tions at Prairie du Chien apparently being somewhat doubtful upon this subject, resolve that the work is 'important as a means of defense in time of war.' This is a very common resolution, and has lost its strength as a matter of novelty. We suppose that it will be conceded that every highroad, street, lane, tramway, railway, or canal may be useful to the government in time of war, if it should happen that it was necessary to transport troops over it. But that prospective fact does not establish that it is the duty of the United States Government to open and construct all the high roads, streets, lanes, tramways, railways and canals in the country. This canal would be of no use for the transportation of troops. Government could send them quicker and quite as economically from the Mississippi to the lakes by rail. It is doubtful whether it would be used for the transmission of ammunition or stores for the supplies of troops, because the railroad would carry them with greater speed. There ought to be no objection to this improvement if the people concerned make it at their own expense; but when they call upon the inhabitants of the country to bear taxation for their particular benefit, they must expect to meet with dissent and disapprobation."

ART. XVI.—MAN AS THE COTEMPORARY OF THE MAMMOTH AND THE REINDEER IN MIDDLE EUROPE.

TRANSLATED BY C. A. ALEXANDER, FOR THE SMITHSONIAN INSTITUTION,

From "*Aus der Natur: die neuesten Entdeckungen auf dem Gebiete
der Naturwissenschaften.*" Leipzig, 1867.

The first age of man must doubtless have comprised thousands of years. We know how slow has been the development of the human race, and from the consideration that each generation stands on the shoulders of the preceding and civilization is but the product of the past, we can readily apprehend that the process of improvement must have been tardy and difficult in proportion to the distance of time which separates us from the period under contemplation. Accelerated progress comes only with the experience and facilities of multiplied years. Long must have been the ages when man's life was but a struggle for existence and for the bare satisfaction of the meaner necessities of his nature. Discoveries have been too few and indecisive to afford us any distinct image of the habits and mode of life which characterized this primordial condition of our race; but it is gratifying to add that a discovery has at length been made which seems to lead in that direction, and which is the more important inasmuch as it has given a renewed impulse to explorations of the same kind.

In the year 1852, a laborer, named Bonnemaïson, employed in repairing the roads near Aurignac, in the department of the Upper Garonne, observed that rabbits when pursued took refuge in a hole on the slope of a hill in the vicinity. Into this hole he thrust his arm, and, to his surprise, drew forth, not a rabbit, but one of the long bones of a human skeleton. Proceeding to dig into the hill, he encountered a large flat stone standing erect and closing a cavity

into which the rabbits had wrought an entrance. When Bonne-maison had removed the stone, he saw before him a natural cavern, wherein lay not less than seventeen human skeletons. The discovery naturally caused a sensation in the neighborhood, and unfortunately the Mayor of Aurignac, Dr. Amiel, felt himself bound in duty to have these human remains transferred to the churchyard and again buried. Not the slightest misgiving seems for a moment to have been entertained by this conscientious functionary that he was wresting from science an invaluable treasure. When Lartet visited Aurignac, eight years later, and heard of this interesting discovery, no one, not even the grave-diggers, could point out the spot where the skeletons had been interred. Thus this rich harvest of ethnological knowledge seems forever lost to the antiquary and geologist.

Lartet nevertheless failed not to visit the cavern, and to institute further researches. The rubbish which for hundreds or thousands of years had been descending from the summit of the hill had buried the stone by which the mouth of the grotto was closed, and had covered a small terrace which existed in front of it. These accumulations being removed, the original surface was again exposed to view, and upon this were found a number of calcareous stones, the remains of an ancient hearth, as well as the bones of many different animals and objects of human industry. In the bed of earth which covered the floor of the grotto were found bones of the cave bear, the aurochs, the horse, the reindeer, etc., which had been neither broken nor gnawed, and, besides these, instrument of flint-stone, a weapon constructed of the antlers of the reindeer which had been sharpened at one end, together with eighteen small disks formed of a white shelly substance and perforated through the middle. These last were recognized as being derived from shells of a cockle (*Cardium*) which is an inhabitant of the ocean.

The bones found on the terrace before the grotto had all been fractured, as if to lay bare the enclosed marrow. Still distinctly to be traced were the notches made by the stone hatchets or knives which had been used to detach the flesh, as well as marks of the teeth of the hyenas which had resorted hither during the night to feast on what remained of the spoils. Even the excrements of these wild animals were still distinguishable. Some of the bones bore traces also of having been submitted to the action of fire. The list of the animals to which the bones pertained was by no means a brief one. Among extinct species were recognized the mammoth, the rhinoceros, the gigantic deer, the great bear, and tiger, and hyena of the cave; among those still existing, the aurochs, the horse, the ass, the stag, the reindeer, the roe, the wild boar, the wolf, the fox, the badger, and the polecat.

The objects of human art and industry found in front of the grotto were very numerous. Sharpened instruments of flint, mostly knives, were discovered to the amount of not fewer than a hundred, and, mingled with them what appeared to be missiles intended for the sling. The circumstance that these objects were accompanied by

cores or nuclei of flint, the material from which they were made, would seem to indicate that some of them had been manufactured at this spot. Other objects also were found in considerable number, wrought of bone, and especially of the antlers of the reindeer, such as points for arrows without barbs, a shape with which we become familiar at a later age; a bodkin formed of the more compact bone of the roedeer and sharply pointed, so as to be well suited for piercing the hides of animals in sewing them together; and still another of smaller size, provided with a very sharp point, which had probably been employed for tattooing. Many flat pieces of reindeer's horn, polished on both sides, closely resemble, according to Steinhauer, of the Museum of Antiquities at Copenhagen, certain implements still in use among the Laplanders for pressing the rough seams. Another plate of the same substance exhibits on one side many transverse lines traced at equal distance from each other, and interrupted in the middle so as to form two rows. On both faces of the plates are notches cut still deeper than the lines, but also at equal intervals. May not these have been counters for marking the values of different objects, or, as Steinhauer conjectures, memorials of the chase? Finally, a fang of the cave bear, (*Ursus spelæus*), perforated lengthwise, as if for suspension as an ornament or amulet, affords us rather an elaborate work of men's hands, a primitive attempt of art to imitate the animal form, being carved into the rude likeness of the head of a bird.

It is not without interest to remark that the bones of the carnivorous animals found around the hearth were entire, and showed no mark proceeding from the use of the flint knives. Even the hyenas appear to have rejected them. The bones which had been opened and were gnawed, belonged especially to the aurochs, (*Bison europæus*), the reindeer, and the horse. The skulls of these animals were wanting; probably they had been broken to pieces in order to come at the brain, and the fragments thrown into the valley. Pallas tells us that, at this day, the Samoeides eat the brain and marrow of the reindeer raw.

From the above facts Lartet has drawn the following conclusions: The burial-place of Aurignac reaches back to the highest antiquity of our race; a proof of this is furnished by the fauna found on the site, and which in part has long disappeared from the earth. The depth of the layer of ashes, as well as the great number of animal bones, show that, in front of this grotto funeral feasts were held, and that it has been opened at different times to receive new bodies, until the cavity was filled. On the other hand, the uninjured bones found in the interior of the cave evince that offerings have been here consecrated to the dead. The various implements were deposited that the deceased might avail themselves thereof, on entering upon another life; a custom which we know to be still in use among various uncivilized tribes. The carnivorous animals which man seems not to have eaten may, by means of their skins or in some other manner, have borne a part in these primitive rights of sepulture.

The absence of all traces of pottery is a further proof of the very remote antiquity of the human remains here discovered. We see, however, that, even at that distant time, man was not destitute of a certain degree of practical skill. Already there are instruments of horn, and the bodkin in particular was not ill adapted for sewing together the skins which protected the person from thorns as well as cold. Nay, the rude inhabitant aspired to some amount of luxury, though, it must be confessed, of a very primitive sort. The disks pierced in the middle must have served to form either an arm-let or necklace, and in the bear's fang above spoken of we have perhaps the oldest monument of art which has descended to us from its earliest infancy.

When Bonnemaïson, the laborer who discovered the grotto, first entered it, there were within it several entire skulls. According to the recollection of Dr. Ameil, who counted the bodies, the remains were those of a race under the average size, and the skulls were brachycephalic, or round, which accords with the discoveries made at Moulin Quignon, and in other caverns. A human maxillary bone found by Lartet, imbedded in the loose soil within the grotto, points also to the same inferiority of stature.

In reference to these discoveries Sir Charles Lyell expresses himself in the following manner :

"If the fossil memorials of Aurignac have been correctly interpreted—if we have here before us at the northern base of the Pyrenees a sepulchral vault with skeletons of human beings, consigned by friends and relatives to their last resting place—if we have also at the portal of the tomb the relics of funeral feasts, and within it indications of viands destined for the use of the departed on their way to a land of spirits—while among the funeral gifts are weapons wherewith on other fields to chase the gigantic deer, the cave lion, the cave bear and woolly rhinoceros—we have at last succeeded in tracing back the sacred rites of burial, and, more interesting still, a belief in a future state, to times long anterior to those of history and tradition.

It may perhaps seem strange that this depository of the dead at Aurignac should have been preserved for us so many thousands of years, and not have been swept away by the diluvial cataclysmus. But when it is considered that, excepting at certain points where the upheaval of the soil has been distinctly ascertained, the height of these inundations over the regions in question has not exceeded 600 to 750 feet, it is clear that the grotto of Aurignac, which has an elevation of 1,290 feet, was beyond their reach. There are various other caverns, moreover, in which proof exist of the cotemporaneous existence of man and extinct animals of the quaternary period. In a general point of view, these caverns may be divided into three groups, those which have been inhabited by men, those which have served as burial places, and those which have formed the lair of the greater carnivorous animals. These last contain numerous bones, the remains of the prey dragged thither, by such wild beasts as the

tiger, the hyena, and the bear. The bones are gnawed, never split lengthwise, nor do any traces occur which would point to the presence of the human race. The caverns, on the other hand, which have formed the habitation of man are readily to be distinguished, even in the absence of human remains, by the existing bones being cleft lengthwise in the manner which was uniformly employed to get at the marrow. In certain caverns are found one or more overlying strata containing remains and corresponding to different epochs. The grottoes which have served as burial place are usually small, and entered by a narrow passage, so as to be readily closed by a flat stone in order to protect the dead bodies from the rapacity of hyenas and other carnivorous animals.

It is easily conceived that many caverns exist which do not fall within either of these three classes. Some of them, which have two entrances may have been emptied of their contents by floods, or been completely filled up with mud and rubbish. Others have been inhabited by man, after having been previously occupied as dens by wild beasts. Others still have been hollowed out by men, in order to be used for different purposes. In the latter, as in those exposed to the action of water, much circumspection is requisite to determine the age of the remains which are found therein.

The principal caverns pertaining to the age of the great cave bears are the following: 1. The grotto of Vallieres, in the department of the Loire and Cher. It contains bones of the rhinoceros, the hyena, the gigantic deer, the bear, the aurochs, a horse, (*Equus adamiticus*,) mingled with stone hatchets, of the kind found in the valley of the Somme. 2. The grotto of Arcy-sur-Yonne. Under a more recent deposit it presents two strata of the quaternary period. Here were found bones of the elephant, the rhinoceros, the bear, and the hyena, intermingled with stone implements; also the two branches of a human under jaw, with teeth well preserved. 3. The cave of the Fontaine, in the environs of Toul, containing bones of the bear, the hyena, and the rhinoceros, as well as objects of human industry, including a needle of bone, provided with an eye. 4. The cave of Pontil, in the department of Herault. It contains a lower bed bearing the remains of the large extinct animals, and an upper one with human remains, charcoal, and implements of stone, bone, and buckhorn, mingled with the bones of horses, and bisons. On the surface have been collected the bones of the polecat, together with smooth stone hatchets, and objects which point to the age of bronze. 5. The grotto of Moustier, in the district of Peyzac, (Perigord.) Here were presented the remains of the cave hyena, the great bear, and scales of the molar teeth of the elephant, such as were found at Aurignac and other places which had been inhabited by men. With the animal remains were mingled stone implements bearing a resemblance to those found at Abbeville. 6. The upper grotto of Massat, in the department of Ariege. Here, besides many animal bones, have been recovered two human teeth and an arrow-head of bone.

The caverns in which such discoveries have been made are not

confined alone to France ; in other countries, revelations of the same kind have taken place. Thus, for example, Colonel Wood has brought to light, in the cavern of Longhole, England, the remains of two different species of the rhinoceros, (*Rhinoceros tichorhinus* and *R. hemitoechus*.) together with knives of flint. In the cave of Wells, in Somersetshire, in the Wokey cave, of the peninsula of Gower, in Wales, bones of extinct animals have been found, but the cotemporary presence of man has not as yet been substantiated. The celebrated Gailenreuther cave in Franconia is well known to be rich in remains of wild animals. The grotto of Chiango, near Vicenza, and that of Laglio, on the shore of Lake Como, contain numerous bones of cave bears, mixed with some implements and the relics of rude earthen-ware, a rare contribution from so remote an epoch of the human race. In Sicily have been found, in the grotto of Macagnome, bones of the *Elephas antiquus*, a cotemporary of man, together with bones of other beasts, and the remnants of human industry. Were we to enumerate all the caverns of this sort, the list would be a long one. We find such in all parts of the earth, and it is not seldom, as for instance in Syria, Brazil, etc., that they afford evidence of the cotemporary existence of man and fossil species. Nor are the discoveries which prove this synchronism of man with the great extinct mammalia limited to the caves alone. The valleys of the Somme, the Thames, etc., furnish the traces of human industry in the form of implements wrought of flint-stone, in common with the bones of the mammoth and rhinoceros. Especially rich are these kinds of depositories in France, Belgium, and England.

But how was it that man and these great mammalia of the quaternary era penetrated to England, after migrating from the north of Asia, where they perhaps existed at the pliocene period ? It is readily seen that the migrations may have taken place before the irruption of the waters into the English channel, or if later, over the ice of the frozen sea, at the date of the upper silicious deposit in the Somme, which must have been very rigid.

The era of the cave bears, embraces several thousands of years. During this period the temperature in Europe was less inhospitable, but on the approach of the epoch known as that of the reindeer, a recurrence of intense cold must have taken place.

It is now some thirty years since the statement was authoritatively made in Switzerland that the glacier had, at a geological period of the earth's history which can scarcely yet be considered as having passed away, occupied a far wider extent than at present, and not only descended to the level country, but piled themselves to a considerable height against the wall of the Jura, opposite to the Alps. Regarded at first by the older geologists as a rash and visionary hypothesis, the glacier theory has continued to gain ground, basing itself on researches restricted to no latitudes, but laying under contribution alike the north and south, the mountains and the valleys ; so that in these later times its most bigoted adversaries will scarcely venture to deny that it has always followed

with scrupulous steps the observation of facts, and has never accepted anything as proved which could not be established by direct reference to the glaciers and arctic seas of the present day.

The rocks of Norway and Sweden, as well as those of Iceland, are in so many places rubbed away, scratched and furrowed, that it may with certainty be assumed that the agent by which these phenomena were produced has been in operation over the whole region, and that where they fail to appear they have been obliterated by subsequent influence, particularly elementary abrasion. The polished and furrowed surfaces, all tending in a certain direction, are found at a height of 5,000 feet in the Norwegian mountains, so that few peaks and ridges rise above the level of the phenomenon. This has undoubtedly greatly contributed to the uniformity of outline in the mountain chains of Norway; while in the Alps, where the height of the phenomenon reaches 8,000 feet, the uniformly rounded summits, the bellying convexity, as it is called, of the surface show themselves only below that limit, and above it first commences the peculiar form, the individualizing structure which gives to the whole chain so striking and sublime an effect.

As in all other mountain ranges, these scoured and furrowed surfaces stand here in the most exact parallelism with the heaps of gravel and sand, as well as the boulders, which occur now on the beds of the valleys, and which have evidently been transported from far distant localities. In Scandinavia, equally as in the neighborhood of the Alps, hundreds of places can be pointed out where blocks of enormous weight, and magnitude, with sharp edges, and which can therefore by no possibility have been rolled, are found leagues away from their place of origin and deposited on a substratum of rock widely differing from their own structure. The direction of the furrows and striae on the abraded surfaces accords with the route which these blocks must have followed in their migratory movement; as it shows also the points from which the moving force derived its impulse.

In various charts the observations made in Scandinavia and Finland respecting the form and arrangement of these abrasions have been collected and compared. Conformable for the most part with the direction of the great valleys and the general slope, the highest point of which is found in the long coast-chain of Norway, there are yet points where isolated mountain summits rise, as in the Alps, to a loftier altitude, and from these the traces of the abrasion radiate into the subjacent valleys.

From a collation of the phenomena under consideration, the abraded surfaces with their rounded outlines and linear furrowings, the angular and unworn erratic rocks, the accumulations of gravel and sand which either run along the sides of the valleys or form in their beds transverse walls or ramparts, convex in the direction of the descending slope, there can be no longer any reasonable doubt that we have before us in these phenomena the work of glaciers—glaciers which once covered all the surfaces on which this assemblage of phenomena presents itself, and which therefore overspread,

as with a continuous roof of ice, the whole of the Scandinavian peninsula and Finland.

M. Kjerulf, of Christiania, calls notice very justly to the observations of Dr. Rink, who passed several years in Greenland and there attentively studied the ice-envelope of the interior country. A continent of wide dimensions, not smaller than the whole Scandinavian peninsula, is here seen covered with an enormous ice-crust, which attains a height of 1,000* feet, and which exhibits a general movement from the interior towards the western coast. Slowly but steadily does this mass, bearing its adventitious freight of rocks, glide downward to the sea, where it breaks off in immense fragments; and it is these fragments which as icebergs, often of colossal size, are borne by the ocean currents even as far as the latitude of the Azores, melting away gradually in their progress, and depositing their rocky burden on the bottom of the sea.

Precisely the same phenomenon was exhibited in Norway, Sweden, and Finland. The land was hidden under a vast covering of ice, which carried down towards the sea the pebbles and gravel, or, if the expression may be allowed, the emery which served this stupendous polishing apparatus as a substratum. The whole mass of Norwegian rock was worn down and striated as we now see it; but the Arctic ocean itself which surrounded the pre-historical Greenland stood at first deeper than the present one; for at many points the surfaces, with the furrows well preserved, stretch down under the water. If this circumstance be not of itself sufficient to explain the refrigeration of this northern region in a degree equal to that of Greenland, it is to be considered that the greater elevation of the land above the sea must to some extent have co-operated to that effect. But where surfaces abraded by the glaciers show themselves under the present sea the water must certainly have once stood at a lower level, for the ice descends not beneath the plane of the sea, but is melted and undermined by the latter, as is witnessed in the case of the polar glaciers, under which explorers have found it practicable to penetrate at ebb tide to considerable distances.

The sea meantime climbed upwards, the land became warmer, the general ice-envelope melted, the loftier ridges came to light, while the glacial mass separated into isolated glaciers which filled the valleys to their mouths. Now, first occur distinct moraines, as in the glaciers of to-day, lateral moraines, terminal moraines, ramparts of rock heaped in lines, of which the outermost stretch to the present coast, while the innermost rise to a certain height on the walls of the valleys, or form barriers across them, where they denote the halting point of the retreat before the sea. The sea followed to the height of some 500 feet, for at this elevation are found banks of shells containing mollusks which belong to the Arctic ocean. At the same time the mighty masses of ice, as they melted, gave forth

*2,000 feet, perpendicular at the heads of the fjords which intersect the coast
(*Lyell's Ant. of Man.*)

streams which, dammed up here and there by the terminal barriers of the glaciers, formed inland seas, while the fine material, which all glacier currents bear along with them in quantities, settled down in the form of clay, marl, and sand. The ocean on the one side, the inland waters on the other, plied their work of erosion on the older masses underlying the ice envelope; the glaciers continued to bring down erratic blocks which, after being long charioted on their icy vehicle, finally sank on the sites where we now find them. And thus was gradually brought about the geologic period, in which the glaciers extend only at a few places to the sea, or else impend at a considerable height above its level, while in the bosom of the valleys reigns, for the most part, a mild and genial climate.

This prehistorical glacier period of the north is no romance; its consistency with observed facts is undeniable. The series of these facts is thus given by M. Kjerulf:

"What do we find to be the prevailing arrangement among these glacial masses piled up and distributed by the sea? Undermost, where they could not again be subjected to the action of water, sand, and rolled stones, that is to say, scoured sand and stones. In these we have the material which was moved forward under the pressure of the ice over the face of the rock. Would we learn the direction of the scouring process, it is to the blocks thus moved that we must have recourse. As these are mostly broken to pieces, small and rounded, they have been called 'rolled stones,' though this, strictly speaking, is an improper name, and they might more properly be called 'scoured stones.' They have not been rolled, but have been reciprocally crushed by one another, and fixed in the ice, like the diamond in the graver's burin, they have traced furrows and striæ in the subjacent rock. Above the scoured sand banks of rolled stones lie the different sorts of loam; first, calcereous loam, marl loam; in precincts open to the waters of the glaciers, sedimentary lime and loam brought down from the silurian strata; next shell loam generally, where the elevation was not too great or the currents of cold, fresh water, produced by thawing, not too powerful; then brick earth, without shell, referable perhaps to an age when the inundation of the interior country was at its highest; then sand, and on the top of all sand loam."

The great erratic blocks first occur above the beds of scoured stones, loam, and sand; in Scandinavia they have been brought into the position in which we now find them in some instances by cakes of floating ice, but for the most part by the glaciers themselves.

We have thus a long tract of time before us, during which a state of things like that now existing in Greenland prevailed, and an icy ocean washed the glacier-crowned coasts of Scandinavia and Finland, which together constituted at that time a separate continent. But it is not in this frozen continent alone that the proofs of such a polar sea are to be found. The whole level country of central Europe from Holland to Russia is strewn with erratic blocks, with rolled or scoured stones, which have all been derived from Scandinavia and Finland, and whose southern limits is determined by the

land which passes under the names of the Weser chain, the Hartz and Erz mountains, and the Riesengebirge. To the east the limit of these erratic blocks winds through the Russian lowlands to the Ural, and thence around to Finland by so regular a curve as to be almost susceptible of being described with a pair of compasses on the map. Here, then, we have the circle of dispersion of the icy ocean in question, within which the blocks were stranded, and from the circuit of which it is at once to be discerned that the Scandinavian-Finnish region was an island, and that a broad arm of the sea connected the present Arctic ocean and the White sea with the Baltic.

More than twenty years ago, an English geologist, Smith, came to London with a collection of shells, which he laid before the director of the appropriate department of the British Museum, with the request that he would pronounce on their value and import. "My dear sir," said the director, after a cursory examination, "you have been taken in by some whale fisher; these are muscles which have been picked up on the shores of the Arctic ocean, but they are in bad condition, weather-worn, and in part broken to pieces, and are at best only fit to be thrown into the street." "I did not buy the shells," replied Smith; "I collected them myself from a stratum of argillaceous earth on the banks of the Clyde, in Scotland, where they form an ancient sea-beach." Nor was there in this any misrepresentation; there exists in Scotland a formation which contain a complete arctic fauna of the class of shells in question.

Since that time such researches have been multiplied. In the whole extent of the North American continent as low as New York, in England and Scotland, in Scandinavia and Finland, and far to the east among the wastes of northern Russia, occur everywhere the same formations; banks of rounded stones, (*Scheuersteine*,) with superincumbent clay, marl, and sand, containing the specific mollusks of the high Arctic seas, or such kinds as only attain their full dimensions in those waters, but which degenerate more and more in size as they approach a southern latitude; whence it is to be inferred that their true home must be sought in the higher regions of the north.

Quite recently Sars, of Christiania, has directed his special attention to the shells banks, which occur in southern Norway, and has with characteristic sagacity and knowledge of individual species, combined the results of his observations. From the collections of shells as well as from their geological stratification, he has been enabled to distinguish two different groups of shell deposits, of which one corresponds to the highest advance of the Arctic sea, the other to the later epoch of its retreat. To the former are related the more elevated accumulations of shells, which reach a height of more than 400 feet above the present level of the sea, and the deposits of loam which lie immediately above the gravel and rounded stones, attaining at most a height of 240 feet above the sea. These are the lines of strand and the more deep-lying deposits of the glacial sea at the period of its greatest extension. In these deposits

of the sea, at its highest elevation, there are found, according to M. Sars, either species which occur only in the north of Norway, and on similar glacial lines of coast, or else such as, when met with in South Norway, England and Scotland, evidently languish and contrive to subsist only under a diminished form; while on the north coast and in the Arctic ocean, where the full conditions of their existence are present, they attain the size which they exhibit in the geological strata. Here, then, the high northern fauna flourished in its fullest development, and those species which at present only reach their full size and complete organization in a glacial sea, maintained them at that distant time in one which washed the southern coasts of Norway. A further note-worthy fact results from these researches of M. Sars. There exists on the northern and western coasts of Norway a beautiful coral which forms large rose-colored branches, and which is only found in the rocky chasms of the ocean, at the immense depth of 900 to 1000 feet. C. Vogt collected some pieces of this coral (*Lophelia proliфера*) during an excursion to the Pippertind glacier, where the poor Laplanders of the coast, in fishing for cod, had probably brought it up from the sea with their angles.

This coral likewise occurs in the older shell-strata, but only in those beds which lie almost immediately on the beach of the sea, or under its level at a depth of from sixty to ninety feet. In these old submarine banks of shells the stems of the coral are still adherent to the rocks, but they are all dead, since the depth of water requisite for their life is wanting. These facts admit of an easy explanation. At the time when these zoophytes lived, the sea stood some 600 feet higher than at present, and, of course, there was the depth of water required for their existence.

Above these older strata, with their testacea of the high north, lie now the more recent shell-strata which ascend to a level of some 300 feet, and correspond with the period of the glacial ocean. Here the remains of the same shell-fish occur, which live at present on the south coast of Norway, though isolated species are also present, derived from the arctic fauna. The arctic species had in general withdrawn towards the north as soon as the retreat of the sea commenced, while the temperature of the subsiding waters became like that which now prevails along the coast of Norway.

All these results are further confirmed by discoveries recently made in the depths of the great Swedish lakes, the Wettersee, and the Wennersee, and which have been described by Loven from his own observation. In effect, there have been here captured specimens of crustacea, several species of which, though very different from those now living in the sea, are clearly related to marine forms; among these a species, *Mysis relicta*, (Geisselkrebs,) whose congeners live altogether in the ocean, and those resembling this new variety only in the most northern latitudes. Another of the species *Gammarus loricatus*, which is, thus far, found only in the Arctic ocean, Baffin's Bay, Greenland, and Spitzbergen; the *Idothea entomon*, (Schlachtwurm,) which only occurs in the Arctic and the Baltic, and

still another, a small *Pontoporcia affinis*, which is still found in the Baltic, but whose related species only occur in the Greenland seas. These singular discoveries show clearly that the Wenersee, and Wettersee, the former of which has an elevation of 300 feet above the present plane of the Baltic, were formerly in communication with the general ocean. At that time, therefore, these lakes were deep fiords, colonized by a marine fauna which altogether resembled that of the polar ocean, and the period of communication undoubtedly corresponded with the higher advance of the glacial seas, as indicated in Norway and Sweden. The sea subsided or the land was upheaved; the inlets were more and more detached, and finally altogether separated from the sea, and have since slowly and gradually been filled with fresh water; this change having been effected apparently as well by sources in the bed of the lake as by the few tributary streamlets. Now, few marine animals endure the sudden transition to brackish water, and fewer still, when the change is very gradual, allow themselves to be borne over into it. The colony of the sea gradually died out, leaving in the depths only a few crustacea, which, as has been seen, correspond in part to the species of the Baltic sea, and in part to those of the Arctic ocean.

But there are other not less interesting conclusions to be drawn from these few species existing in the lakes of the interior, as well as from most of the species of fish now living in the Baltic. In general there can be recognized a close relationship with polar and arctic forms, even when the species are not the same. In general, also, there is a diversity observable as regards the species living on the western side of Norway. From this, as well as from the difference of the testacea, which are met with in the older deposits, Loven has very justly inferred that the basin of the Baltic was once connected with the Arctic ocean by an arm stretching eastwardly over lakes Ladoga and Onega to the White sea, but was, on the other hand, separated by a narrow strip of land or isthmus from the Western ocean, with which it now communicates through the sound. This separation must first have taken place when the glacial sea was on the retreat. Testaceous beds are met with in the region of the Eastern sea, at an elevation of 130 feet, and these correspond in some species with the arctic character. But, as Loven properly remarks, the fortunes of the glacial fauna of the east differed from those of the same fauna in the west. The basin of the Baltic was by degrees wholly separated from the polar seas, and the water, by progressive freshening and depression, became more and more unsuitable for arctic life; while at the west, the sea surrounding the southern coasts of Norway stood constantly in open connection with the Arctic ocean, yet gradually acquired during the retreat a higher temperature, so that the northern fauna was driven thence, and was replaced by southern forms. This substitution did not take place in the Baltic. The opening of the sound at a later period brought into that basin no new species from the Western sea. The Baltic basin, therefore, grew poor through the depredation of unreplaced species; while the Western sea, by the accession of the fauna be-

longing to warmer waters, acquired new affluence.

Middle Europe also has had its glacial era. On both sides of the Alps, in the Vosges, and the Black Forest, in the Pyrenees, and other great mountain ranges of Europe and lesser Asia, the stone barriers and erratic blocks, the rolled pebbles, the polished and grooved rocks, which speak so plainly of glacier action, have been pointed out.

At the time of the so-called reindeer epoch, an advance of the glaciers took place for the second time, and this in consequence of a great inundation which was slow in attaining its ultimate limits. By this incursion, most of the low-lying tracts of Europe were laid under water. In Belgium, according to Dupont, the flood must have reached a height of 450 feet. To this inundation are to be ascribed the masses of gravelly clay, or calcareous mud, which have covered a part of France and Belgium.

The cold during this new overflow must again have become intense, but not so formidable as during the great glacial era. As most caverns were submerged, and men were forced to withdraw into the more elevated regions, a chasm presents itself in the paleo-archeological documents of this period, which, from the indications we possess, embraced several thousand years. Glaciers are not suddenly melted; valleys do not soon become filled with alluvium reaching to a height of some hundreds of feet on their side walls; tracts of country and mountain chains cannot be heaved, at a jerk, as it were, into the air and raised high above their previous level. Processes of this sort require time, much time; and it is only by slow degrees that a state of great refrigeration, even when its causes have ceased, is transmuted into one of warmth and comfort.

After the final retreat of the waters, the caves would again come into the possession of men, and numerous and valuable proofs of human industry be prepared, which have been preserved even to the present time.

Here commences the true reindeer era. The reindeer as the most characteristic representative of the northern fauna, beyond a doubt, inhabited, with the cave-bear and mammoth, the south of France. But it is at this period that it first makes its appearance in great numbers. It now spread in large herds as far as the Pyrenees, leaving no grounds for supposing that it had been introduced by man and kept in ancient folds. On the contrary, it lived here in its wild and naturally free condition. The last mammoths were yet alive, as were also the rhinoceros and the great tiger. But the hyenas and the cave-bears existed no longer in middle Europe. An entire fauna of the larger animals becomes extinct, and man witnesses its disappearance from the earth.

The anthropological facts which we possess in regard to this far distant time are of course not very numerous, but not the less do they enable science to gather the general characteristics of the human race which lived at the reindeer era and in the period of stone implements which followed it. The stature of that race was small and the head round (brachycephalous,) the face broad and

square, the hair black * The skull was usually thicker than with men of the present day Nor is there anything which announces that the people of the reindeer era were particularly intellectual. From negative proofs it may be inferred that man at that remote period believed in another life, but there is nothing on which we can found an inquiry as to forms of worship. We find no figures or symbols which point to a veneration of idols. There has, indeed, been discovered a rude figure of a woman, carved on an elephant's tooth, but the idolatrous destination of this relic is not generally recognized. But while no religious idea can well be attached to it, it affords a proof that an advance had been made in art, which we cannot but consider highly creditable for this dawn of its development. The Marquis de Vibraye, to whom we owe this discovery, remarks :

"The man of the earliest age makes himself known through his works ; he connects himself through his relics with the extinct animals ; and finally becomes the revealer of his own existence by bequeathing us a representation of his corporeal figure."

Besides this rude female image, there is also a naked human figure, which seems to bear a staff on the shoulder, that has come down to us on a piece of reindeer's horn. The meagreness of the haunches and thighs, the prominent belly, somewhat reminds us of that type of Australian savages which we have learned to recognize from frequent representations by travelers, as for instance, from the atlas annexed to the voyage of Dumout d'Urville. The head is delineated only by a circular line. Accompanying this figure are two horses' heads, the neck of one horse being partially veiled by the human form, which again is closely followed by what is apparently intended to represent a reptile of considerable length, perhaps a serpent, but, judging from the shape of the head, body, and tail, with some traces of fins, more probably a large eel trailed along by the person in advance.

To the human figures in question is limited the personal representation which has so far descended to us, of the race of men living at the period of their execution, and it may well be supposed that they afford imperfect grounds for ethnological deductions. Yet, rude as they are, they do not want a certain interest arising from the consideration that in presenting the human form entirely nude, they may, perhaps, indicate that such was the habitual condition of that ancient population, an inference which the climate of the south of France, at least in summer, would render credible.

The discovery at Aurignac has already initiated us into the burial rites of the oldest known period of our race, nor had the man of the reindeer age changed the ceremonial which tradition had handed down to him. The grotto of Fontal, at Furfooz, in the neighborhood

*This round-headed race disappeared in great part after the immigration of the Aryschen race (dolichocephalous or oval-headed) from Asia, but it has not wholly perished. According to Nicolucci, it is still found in Hungary, (the Magyars,) in Liguria, in the country of the Basques, in Finland, Lapland, etc.

of Dimant, disclosed very nearly the same peculiarities as the sepulchral cavern of Aurignac. The remains of thirteen human bodies, thrown one upon another by the floods of the diluvial era, have been here discovered at a depth of fifty-one feet under the gravel, and at an elevation of 390 feet. The entrance of the grotto had been originally closed with a flat stone, but this barrier has been destroyed by the irruptive waters. Two skulls only remain entire; as yet, however, the conclusions to which these curious relics of the anti-diluvian era may conduct us, have not been discussed. According to Beneden and Dupont, there is a great difference between the two remaining skulls: the one is orthognathous, that is to say, with the teeth and bones of the chin in a right line, while the other is prognathous, having the jaws and teeth projecting; still the latter is said to have a higher forehead, and the cavity of the skull a greater capacity. Together with these remains was found an urn, which, unfortunately, is broken to pieces. In this we have the oldest extant specimen of the yet infant art of pottery. This burial vault contains, besides the above objects, instruments of stone, an all and needle of bone, an arrow point, and an articulation of the foot, which has evidently been wrought into some instrument. Thus it appears that the men of the reindeer period, like those of the age of the cave-bear, were accustomed to deposit with their dead objects of industry and ornament, which the deceased had doubtless been in the habit of using. As regards the bones of foxes, goats, and wild boars, which are also present, it is uncertain whether they have been borne hither by floods, or are the remains of offerings which, as at Aurignac, have been set apart for the deceased. In the wide space before this cavernous sepulchre have been found numerous implements of stone and reindeer's horn, and, moreover, traces of a hearth, which probably indicates that a funeral feast had been held at the entrance of the cavern.

The people of the reindeer era were not acquainted with husbandry, and as little with the domestication of animals.* No instruments for fishing have been recognized. If the weapons of the age were still imperfect, they answered all necessary purposes, for we have already had occasion to notice the skill with which barbarous races of men contrive, with but rude instruments, to slay the swiftest and fiercest animals.

The beasts which lived coterminously with man were, at this period, besides the reindeer, which had now attained its widest distribution through middle Europe, the following: the aurochs (*Bison europæus*,) the horse, which has improperly been regarded as differing from that of the present day, the primeval ox (*Urus primigenius*,) the musk-ox (*Bos moschatus*,) the deer with colossal

*A fragment of a reindeer's skull, which still contained the arrow-head of stone with which the animal was slain, shows that the reindeer was hunted as a beast of chase. It has also been observed that the cartilage was still attached to the bones which have been thrown away by man after the extraction of the marrow, and that the edges of the fractures thereby occasioned are still sharp, which would not be the case if the dog had been at that time a domesticated animal.

antlers (*Megacerôs hibernicus*,) the elk (*Cervus alces*,) the roe-buck (*Cervus dama*,) the wild goat, the chamois, the wild boar, which was either rare or its flesh not eaten, the beaver, lemming, a species of hare, (*Lagomys*,) and the marmot. Among birds, we may mention the great auk, the heath-cock, the moor-hen, the snowy owl, etc. It affords an argument for the prevalence of a great degree of cold in our region at the time in question, that the greater part of the animals just cited live most generally at the present day in high northern latitudes, or on the snow-covered peaks of the Pyrenees and Alps. The musk-ox descends in America only to the parallel of 60°, and habitually frequents the limits of perpetual snow.

In this reindeer period, the use of metal was unknown. Mankind continued to avail themselves of stone for the construction of their implements, through, together with this, they occasionally employed bone, horn, and ivory. There is evidence that the commerce of men at this time already extended to considerable distances. The population of Belgium, for instance, sought for silex in Champagne, which they might have found still nearer, in the vicinity of Maestricht and in Hainault. From this it may probably be inferred that, in certain directions, communication was attended with much difficulty. Bridges and artificial roads there were none, nor is there anything to show that resort was then had to boats for the passage of water-courses. Unwieldy rafts were seemingly the only means of conveyance when inundation or other exigencies stimulated the earliest attempts at navigation. To travel in unknown regions, standing thick with woods, where no trace marked out the way, was itself a circumstance well calculated to repress adventure; yet not the less did these Belgians hold communication with what is known as Touraine, a fact which is satisfactorily proved to us by discoveries made in the cavern of Chaleux.

Human food was chiefly animal; the horse and reindeer furnished its principal staple. But the bison, the great ox, the goat, the chamois, were also eaten, and even the rhinoceros, when he could be mastered. The marrow and brain of animals were coveted as luxuries by a race, which did not, however, disdain the water rat, if the chase had been rewarded by nothing more acceptable. In the cave of Chaleux, Dupont found in the vicinity of the hearth more than twenty pounds weight of bones of the above animals, some of which had evidently undergone the action of fire. Yet, as the organization of the human frame is shown, even by its dental system, rather more adapted to a diet of fruits than of flesh, it may readily be supposed that this primitive people laid the forest under contribution for something more than its contingent of animals. Acorns and chestnuts at least must have entered into their dietary with the horse and reindeer, and while it would be vain to challenge any proof of this, it must be considered that such articles could not fail totally to disappear in the lapse of so many ages. It would be difficult, in the midst of our civilization, to form a conception of the uncleanly customs of this reindeer epoch, and, indeed, even of times still later. The bones left from their meals were carelessly thrown

into the corners of the cave, filling it, of course, with putrescent miasmas. To find at present an analogous condition of things, we must go to the Esquimaux, who live towards the north pole. Like the latter, the people of whom we have been treating cared little for the accumulation of filth in their habitations, but here, at least, the winds had free access, and would, to some extent, expel the gases of decaying animal remains.

(To be continued.)

ART. XVII.—THIRD ANNUAL STATE FAIR OF LOUISIANA.

The Third Grand Fair of the Mechanics' and Agricultural Association of Louisiana was inaugurated with appropriate ceremonies on Tuesday, April 6th. At 1 o'clock the Directors moved from the pavilion in the centre of the arena to the centre of the amphitheatre. Dr. Palmer invoked the blessing of the Almighty on the works of the Association and the Third Annual Fair. Mr. I. N. Marks, the President of the Association, then said :

Ladies and gentlemen, it again becomes my pleasant duty to proclaim the opening of another Grand State Fair under the auspices of the Mechanics' and Agricultural Fair Association of Louisiana. The Board of Directors of this Association have labored unremittingly and with an earnest desire, to subserve, and promote the welfare, prosperity and progress of the State. They have labored unselfishly, and industriously to make this Fair a complete success.

How far they have accomplished this result the public verdict must determine. One fact is patent to any one, and placed beyond controversy, that this institution is now important, and necessary to the State of Louisiana. It is true that the people are not yet educated to a proper appreciation of the grand results destined to grow from it, but they soon will be, and the time will come when it will be no longer necessary to make earnest appeals to them to sustain the pride and the State interests, nor to impel every good citizen to its support. The members of the Association have expended their time, and labored unselfishly, to promote the good of the public, and become its benefactors. It is not my province to attempt to deliver any elaborate address. Fortunately for myself, and for you, this duty will devolve on a gentleman infinitely more capable. All that it becomes me to do is to proclaim the opening of the Third Annual Grand State Fair of Louisiana, and that I now do.

Ladies and gentlemen, I have the honor to present to you our fellow-citizen, Judge Alexander Walker, the orator of the day.

We must content ourselves with making extracts from the address of Mr. Walker, bearing especially upon the industrial and social results of the war upon the Southern people :

HARMONIOUS RELATIONS BETWEEN THE WHITE AND BLACK RACES.

I must especially congratulate you and all my fellow-citizens on the happier auspices and greatly improved circumstances of the present over the celebration of last year. The ameliorated condition of our State and people in all those interests, and relations which it is the object of your association to foster, and promote, is most cheerfully palpable and conspicuous. Our agriculture, the chief source of all our wealth, has been favored with benign and fructifying seasons. The soil has yielded abundantly of the products which supply subsistence to man and the animals he has subjugated to his will, and uses. Thus strengthened and encouraged, our cultivators have been enabled to gather and transmit to market an amount of the great staples so eagerly demanded by the

necessities and desires of the civilized world, which has afforded them higher rewards than was ever before received for the same products. The bulk, it is true, of these products has not reached that of former years, but the price being *three times higher*, the aggregate value has been more profitable and compensatory. The 750,000 bales of cotton received in the last five months in this city, of which our own State has contributed more than her rateable proportion, have produced a larger amount of money than was ever before received in one year from the same product.

It has left a larger sum to the credit of the producer, who now realizes one of the several compensations for the great losses of the war. He is thus placed in possession of more surplus means to apply to the improvement of his plantation than he could command in the *ante bellum* era, when his revenues were so largely absorbed by the heavy interest on loans and advances, and the large investment in slaves. The good effects of this condition of the planter will be shown in a largely increased cultivation and production in the approaching season. It is already exhibited in the brisk, and greatly improved state of our trade, in the advance of stocks, and securities, and of real estate, and in the influx of capital from abroad to invest in our rich lands.

It is further shown in the improved character and organization of our labor; in the more cordial and satisfactory relations between employer and employed, and in the hopeful and encouraging solution of the problem of the adaptability of newly emancipated labor to efficient cultivation, and the practicability of a *harmonious co-operation between our former slaves and their old masters*. These results are alike creditable to both parties. They demonstrate the influence of our political and social system, and the peculiar advantages of our physical circumstances.

The same experiment has never been tried before. That the slave institution, as it existed in the South, with many acknowledged evils, was grossly misrepresented by those who made it the sum of all wrongs, and the embodiment of every vice and crime, is now abundantly proved by the harmonious and confidential relations which prevail between the planter and his former slave. This never could have occurred if the natural evils of slavery had not been mitigated and modified by the superior humanity, enlightenment and generosity of the white race, to whom this institution descended as the Nessian gift of a colder, harder, more selfish and avaricious people.

To them belong the awful responsibility for the horrors which gave to that institution its dark and revolting features; to our ancestors is due the praise of having so far ameliorated the condition of these victims of cruelty and avarice, as to prepare and qualify them, in a great measure, for a higher civilization, and for those civil, and social responsibilities to which they have been so abruptly introduced.

The horrors of the middle passage, of the Barracoons, of the branding and scourging, of the ruthless sale and separation from home and family, and the other atrocities of the African traffic, which have contributed such dark and dismal chapters to the early history of this continent, attach not to the memories and reputation of the people who settled this section of the Union. But those kind, softening and patriarchal features of the social relations of the African slave to his master, as it existed in the South, resulted from the higher chivalry, the more humane and enlightened moral, and intellectual culture of the white race which peopled these States and developed in this genial clime. That this is no arrogant self-praise and assumption is shown by the universal preference evinced by the former slave, but now independent freeman, for his old master.

Let the fact go down to posterity as a complete and eloquent refutation of the calumnies that have been heaped upon our people and section. Let no remote descendant of ours be exposed to the shame and mortification which have been doubtless felt by many a pious son of Old and New England, when reminded of the wicked means by which the foundation of their great wealth, and prosperity were laid. Let posterity and history be armed with the testimony in vindication of the humanity and chivalry of our ancestors, expressed in the recognition by our former slaves, that their truest and most honest friends have been those with whom they have lived, alike in servitude and freedom, on terms of mutual kindness, confidence and good will.

And so it will continue unto the end, despite the miserable arts and plots of scheming partisans and deluding demagogues. The time rapidly approaches when this *entente cordiale* will be so complete, so deeply impressed upon the minds of the children of Africa, that in all social, political and civil relations, they will regard those who, for base, selfish, political ends, seek to control and mislead them, as the legitimate heirs and successors to those who bought and sold their ancestors in their native land, and in chains and shackles, and in the dark and pestiferous holds of ships, bore them to a distant and ungenial clime and country and consigned them to eternal slavery.

RAPID REPARATION OF SOUTHERN PROSPERITY.

But I willingly abandon this discordant theme, and return to the pleasanter one of the great progress and advancement which have been made in these States during the last few years, and of which this scene is one of the most cheering manifestations. History has no record of any similar rapid resuscitation and obliteration of the ravages and desolation of one of the mightiest wars by which a people and country were ever scourged. No like instance can be found in the annals of mankind of the potency of that *vis medicatrix nature* by which the most terrible afflictions and calamities, the woes unnumbered of a frightful fratricidal and internecine conflict have been overcome by the energy, the fortitude and will of man; not only overcome, but even turned to "the uses of that adversity

Which, like a toad, ugly and venomous,
Wears yet a precious jewel in its head."

It is this wonderful recuperative force which demonstrates the great and historic traits of our race. Great in war, our people have shown themselves still greater in peace. If they have not conquered in the field of physical strife, they have achieved that greater victory which the conqueror of the world failed to win—they have conquered themselves; they have proved the victors over their own passions and weaknesses. They have won the laurel by their valor and prowess in battle—they have merited the civic crown by their fortitude, and heroic resolution in defeat.

And now behold the splendid fruits of this victory; the splendid proofs of the power and virtue of these high moral attributes, which conquer defeat and defy disaster, within so brief a period since grim-vissaged war drove her fiery and blood-stained chariot over our land, scattering death and desolation over its surface; when the people of this nation were arrayed in two great, and mortally hostile armies, and at the head of one of these armies stood the chieftain who now fills the highest office in the Republic, and who found opposed to him a foeman worthy of his steel in that matchless chieftain and hero, who so long and with such immortal constancy, and capacity wrestled with calamity, and fate; within so brief a space since this melancholy and impressive picture was presented to an astonished world, what wonderful changes have swept over our land; when we behold the one of these chieftains the revered and honored instructor of the rising generation, in morals, in science, in all the arts of peace; and the other elevated to the highest dignity to which a freeman can aspire, bowing to the majesty of the Constitution and the civil authority, proclaiming the noble and philanthropic sentiment, "let us have peace"—an invocation to which the people with one universal acclaim respond, Amen!

No wonder such sudden transformations, such power of recuperation, should perplex and confound the minds of the sages and statesmen of the Old World, and drive them to the hypothesis of a special Providence.

PERMANENCY OF THE UNION AND PROSPERITY OF THE SOUTH.

* * The success and prosperity that the proud Englishman could only refer to supernatural causes, the philosopher and historian will find far more satisfactorily accounted for by the influence of our political institutions and the peculiar characteristics and circumstances of our civilization. It is to these we owe the invincible vigor, the exhaustive energies, the wonderful activity of mind and body which win victories, and achieve results that to the slower intellects, and duller faculties of the people of the Old World, are only attainable through Divine agency. And yet, in all candor and humility, it must be confessed that

much yet remains to be done to justify this high claim of our people, and to merit the unnumbered favors which the Almighty has lavished upon our country. With peculiar emphasis may this be said of us, whose happy lot has been cast upon the banks of yon gigantic river, which flows by our city with such silent grandeur, and, like the good Samaritan, stealthily contributes, in so many forms, to our comfort, our health, and our enrichment. Through this great agency, the command has been given to us of the ever growing commerce of the richest valley in the world, now in the infancy of its development, and yet even now vast in its productive energies, and still vaster in its capacities. The sparsely peopled, and but partially cultivated extent of rich soil through which, and through every clime, from the region of eternal snow to that of perpetual sunshine, this noble stream holds its steady, swift, and unvarying course, will, ere the child who gambols on yonder green, in all the buoyancy of childhood, has passed into the gravity of manhood, become in itself an empire, surpassing any single nation of the world in all the elements of national greatness, power, and wealth, a mighty community of States, independent in all in which a proud people demand to be independent, but bound together by a thousand ties, and by none more indissoluble than by their common interest in that great avenue of commercial, political, and social intercourse. When this grand destiny shall be realized, then will New Orleans begin to enter on her high mission—then will she vindicate and verify the prophetic wisdom of the sagacious and enterprising Frenchman who selected this site for a city, which he predicted would become, in the course of a brief period in the history of man, the greatest commercial emporium of the continent—a city which should transcend the greatness, glory, and renown of Tyre, and Sidon in ancient, Venice and Genoa, in mediæval times, and the great cities of our own age and era. How better can we hasten and promote this magnificent realization, than by giving our cordial aid, sympathy, and co-operation to all associations and enterprises like this, which aim to kindle in the hearts of the people a warm love of their State and city, to create and strengthen a sentiment of local pride, "racy of the soil;" an enthusiastic devotion to all that will elevate the ideas, refine the tastes, purify the morals, invigorate the patriotism, and ennoble the aspirations, and pursuits of the people.

The attendance at the Fair was very great. On one day it was estimated that there were fifteen thousand persons present. It was difficult to discriminate between the citizens of New Orleans who were attracted by the novelties of exhibition, by the delightful weather, and the numerous amusements which were offered, and the strangers who, visited New Orleans for the pleasures of the climate, to enjoy, or contribute to, the spectacle. Our own impression is, that our own citizens contributed a larger proportion of the assemblage, and that the particular people for whose benefit the Fair was intended did not participate to as large an extent as we should have desired. We did not see as large an attendance of planters, and of those representing live stock, machinery, and improved processes as we had desired. Nor do we think the display or attendance in these respects has increased in the rapid progression we had hoped. We must tell the directors frankly, that while the exhibition of paintings, embroidery, musical instruments, and excellence in the fine arts are delightful to behold, while balls, spectacles, and races by horses, or velocipedes, will bring together thousands of our own citizens, and will add greatly in keeping up this valuable enterprise, these are but incidental to the main object of the Fair. That object is to improve the productive capacity of our own country. It is very well to obtain from a natural love of show and pleasure a popular contribution for this object, just as we give balls and concerts to help the widows and orphans, who might not obtain as

much from charity as is thrown away in pleasure. It is very well to bring our people together to spend their money on each other, but these things add neither to the industry, nor capital of New Orleans. We must not lose sight of the great object of these Fairs. It is to substitute mechanical for manual labor. It is to provide varied employment for all the unemployed population. It is to fertilize the impoverished soil, and to bring new products, and improved means of culture. These objects require invitation and inducement to be afforded to the whole Southern people. Georgia and Tennessee should send their specimens of mechanical ingenuity, South Carolina her newly discovered phosphates, Florida and Alabama fruits and lumber. Such is the great object with which the patriot regards this Fair. It should attract capital and enterprise from abroad. It should diffuse among intelligent and impartial strangers a correct appreciation of the extreme value of our soil, and climate, and society. We repeat, that crowds of our own citizens are but an incident to that object. If we buy and sell among ourselves, there is no more money in the city, while there is a positive loss of labor in the time devoted to this enterprise.

We cannot be expected to publish at length the various improved machinery for draining and stopping crevasses, for grinding, granulating, and refining sugar, for shelling and grinding corn and rice, for ginning cotton, and for dressing the ramie, nor the plows, harrows, and implements for saving labor.* Among these last we class the machines for sewing, washing, the cooking stoves, and other improvements in domestic economy, as of infinite importance. They spare woman much toil, relieve her from the trouble and expense of menial service, and leave her more time to enjoy the pleasures of society, and fit herself, and her children for usefulness. The application of steam to certain great purposes of Southern agriculture, tends to improve the profits of the planter, and to make him independent of the laborer. The application of science, and especially of chemistry, to the industrial pursuits, will enable us to utilize the intellect and energy of our people. The variety of pursuits tend to attract immigration, because it will give employment to all their numbers, instead of confining their labor to agriculture alone.

It should not be forgotten that the South, for the first time, affords a home market for manufactures. The slave consumed but cheap and coarse goods. The master provided for him subsistence and shelter. The freedman provides for himself and his family. The whole proceeds of his cotton is expended in his purchase of supplies, and these are of a more costly character. There is, then, more home demand than ever for manufactured merchandise, and men of the North are moving their machinery to the country where the demand

*We return our acknowledgements to the inventors and exhibitors of mechanical improvements. Their liberal patronage will be found in our advertising department. As DeBow's REVIEW goes to several thousand planters throughout the South, we are happy to become the medium for introducing to each other the men who cultivate the earth and those who plan for them how to do so with the least amount of manual labor.

is so great and the reward so liberal. The patrons and projectors of this Fair deserve infinite praise for their efforts, and congratulations on their success. They are as well aware as we can be of the proper policy to be pursued, and we feel confident that each recurring year will see the Fair of New Orleans, like the Olympic Games, more renowned, more prosperous, and more useful.—*Ed. REVIEW.*

ART. XVIII.—DEPARTMENT OF AGRICULTURE.

AN ORANGE GROVE.

This is the largest grove in bearing in this section of the country. Just look at it! As our little boat gently glides along, we gaze at it with admiration. Five hundred large orange trees, with fresh, shining, green tops, in good shape, with their golden fruit temptingly displayed. We think of the commandment, "Thou shalt not covet," and we would not; but we do wish we could have a grove like this. How easily we could live! No hard labor required; only a little tillage to keep the weeds subdued, and then to pick the fruit as it matures, or sell it on the tree if you like. We land, ascend the gentle slope and are at once within the grove upon enchanted ground. Mr. Davis, one of the proprietors, receives us politely, treats us with the delicious fruit, and readily answers our inquiries. But we cannot propose them yet, for we are almost bewildered with the richness of the scene. We think of our Rochester friends and wish them here to enjoy it with us. The bright, green foliage, the rich, yellow fruit, and the dark gray sand plain underneath, clean and smooth, are all in bold contrast. Looking through the trees, beneath the foliage, we see the bright waters of the river all around the point of land on which the grove is situated, and we turn repeatedly to secure a view of all its beauty.

"How soon, Mr. Davis, do the blossoms begin to appear for the next?"

"In the latter part of February, continuing through the season."

"When do you begin to pick the fruit?"

"It begins to ripen in August, but we do not commence picking till October. Until two years ago this grove of five acres had been greatly neglected, without trimming or cultivation. Since then I have tilled it, to keep down the weeds, without any crop, however, as the trees are planted too thick. I have along side here another field of eight acres, with a new grove of 600 trees, planted a year ago, in which I plant vegetables for market."

"What were the proceeds of your orange crop in 1866?"

"The picking of that crop, completed in February, 1867, amounted to \$4,000, the next year's crop, completed in February, 1868, amounted to \$3,000. A part of the present crop picked before December 24th, was sold for \$2,000. If the unusual bad freeze of December had not occurred, we should have sold over \$5,000 worth. That hard freeze caused a great many oranges to fall, and made them almost dry of juice; we have allowed all that will remain to hang three or four weeks yet, hoping that the juice of the orange may be in a great measure restored. We already see a great improvement in that particular. Yonder is a tree," pointing to one on the outside of the grove apart from the rest, "from which I myself picked 2,500 oranges in November last, and sold them at three cents each, \$75; several in the grove, quite as large, bore about the same, others 1,500, some 1,000 and some 500, down to 100, according to size, as you see there are a few small trees mingled in the grove. Some of the largest trees, planted before the great freeze of 1835 were killed, but sprouted and grew up again; others were planted at different times since. I think we shall yet realize \$600 or \$800 more from our present crop; you see enough hanging upon the trees to amount to double that sum."

"To what market do you send your oranges?"

"To Savannah, Charleston and Augusta in part, but chiefly to New York and the northern cities. Those I sent to New York in November brought me \$15 to \$17 a barrel, or about five cents each."

It is readily seen the culture of the orange is exceedingly profitable, as after a grove is brought to bearing, it requires little attention and expense. In three years after budding the tree begins to produce a little fruit. In five years enough is realized to pay the interest on the cost of investment, if the land was favorably purchased; in ten years, sufficient to return the whole investment each year, and be a constant source of income thereafter. Hence it is that choice lands on the St. Johns are being rapidly secured, many of them at high prices, from \$25 to \$50 and even \$100 per acre for some, according to location, those being soonest taken from which early vegetables and fruit can be sent to New York in the shortest time.

The old settlers, having a few orange trees, thought them of no account, giving their attention almost wholly to cotton, but now they begin to see their error, and are waking up to a different line of policy, so that it is very difficult to find for sale, even at a high price, an orange grove in bearing anywhere on the St. Johns river, or very near it.

The settlement and improvement, and the planting of so many new groves, has excited a general interest among the Southerners, stimulating them to renewed exertion, and encouraging Northern emigration yet more; so that a vast change will be seen in Florida within the next ten years. Her fruit and vegetables, her cotton and sugar will be increased more than an hundred fold.—*Correspondent Florida Union.*

THE USE OF FERTILIZERS IN RAISING COTTON.

Mr Peabody, of Russell county, in this State, experimented in raising cotton, last year, and succeeded in gathering 2,149 pounds of clean seed cotton from half an acre of land. In his report to the East Alabama Agricultural Society, he describes the method of growing it, as follows:

"The half acre planted in cotton as described, was a piece of old pine land, light sandy soil—would produce, with ordinary culture and common seed, about three hundred pounds to the acre, seed cotton. I cow-penned the piece last winter. In the spring I turned the manure under with a turn-shovel plow, and followed with a sub-soil. About the middle of April I crossed the piece with the scooter, and followed with the sub-soil again. The 25th of April I opened furrows three feet apart, and in the bottom of the furrow put in two hundred pounds of Pacific Guano; threw two furrows on this, with a turn-shovel, and over the Guano planted the seed. I planted three seed to a hill, fifteen inches apart, and thinned out to a stand of two stalks. When the cotton was up three inches high, I ran around it with a scooter, and finished the middles with a horse-hoe. The variety of cotton planted was the Dickson, hybridized by my long staple. In the early season, the crop suffered as much as sub-soiled land could suffer from drought, and later, suffered from too much rain. The 14th of September the worms took it, stripping every leaf and young boll, lessening the product nearly one-half."—*Tuscaloosa Monitor.*

THE PEANUT CROP.

Compared with cotton and tobacco, the chief money crops of this section, that of peanuts is much more profitable. The cultivation is as easy as that of corn, as is shown by the fact that some planters have fields of a hundred acres or more. But there are certain conditions necessary to success, and these must be rigidly observed, whether on a large or small scale. These condition are a free, light

soil, and the presence of an abundant supply of calcareous matter—either marl or lime. Both of them abound in lower Virginia, and hence the eminent success which has attended the cultivation. Where neither lime nor marl is accessible, ashes serve as a good substitute. Theoretically, we should conclude that bone dust, or the superphosphates, would answer a useful purpose. At any rate the latter might be used to advantage as a fertilizer, equally with guano. We now append specific direction for every part of the management.

The land should be of medium quality, not too stiff, nor very light. Peas raised on the former are of a dark color, on the latter bright.

If the land has not been previously limed or marled, apply fifty bushels of lime, or a hundred and fifty bushels of marl to the acre.

It is best to follow corn with peanuts, but they do not come well after potatoes. A great object is to have clean land. It is generally considered an exhaustive crop, but it is not more so than others, provided the vines—which make excellent provender—are allowed to remain on the land. Successive crops may be grown on the same ground if manure is used.

Commence plowing shallow with a single plow in March or April, according to the weather.

About the 10th to the 20th of May, throw up ridges three feet apart, which are to be reduced in height to about three inches above the general level of the field. Then plant at distances of eighteen inches in the row, dropping two seeds in a place, and covering to the depth of an inch to an inch and a half.

In about a week or ten days they will begin to come up. As it is a great object to get a good stand, the missing hills should be replanted at the earliest moment.

As soon as the grass makes its appearance, give a light plowing, throwing the earth from the vines, and follow with the hoe, thoroughly removing all the grass from the row.

Plow again as soon as the grass reappears, using a double shovel cultivator, and the hoe as before directed.

Next comes the time for laying by, the vines having grown half way across the space between the rows. This is done by running a mouldboard once in the middle between the rows, and drawing the earth up to the rows with the hoe, care being taken not to cover the vines, nor to make the ridge too high. Where there is grass in the row, it must be pulled up by hand.

The time for harvesting the crop is from the 15th to the 30th of October. When the weather is settled and favorable, take three-pronged forks, bent like a hoe, and loosen the vines along the rows. Hands follow the diggers, pull up the vines, shake the earth from them, and leave them in the same place. In dry weather they will be sufficiently cured in two days to be shocked.

In shocking, provide stakes seven feet long sharpened at both ends; then lay two fence rails on the ground as a foundation, but with supports underneath to afford perfect ventilation. The stakes are stuck in the ground at proper intervals between the rails, and the stacks built up around them, and finished off by a top of straw. The diameter of the stack is measured by the length of the vine.

After remaining about two weeks in the stack, the picking should begin, taking off none but the matured pods. These are to be carried to the barn and prepared for market by fanning and cleaning. Some planters even go to the trouble of washing, in order to have a brighter and more attractive article.

The whole cost of cultivation and preparation for market is about \$40 per acre. The average yield is fifty bushels to the acre, though some land will yield over a hundred bushels.

Though the product, has been largely on the increase for several years, yet the demand increases in an equal proportion, so that the peanut—especially the large Virginia variety—is fast becoming the most popular nut in the country. Its use is rapidly extending throughout the North and West.—*Petersburg Index*.

ST. LANDRY PARISH.

We have been much pleased and interested by a pamphlet issued by the Immigration Society of St. Landry, setting forth in a lucid and able manner the

agricultural, healthful, and social advantages of the parish, and its vast resources for cattle raising.

This fertile and beautiful section, which we trust the world-spanning iron horse will soon bring to our very doors, has an area of one million three hundred and fifty thousand acres. The alluvial lands on the margin of rivers are second to none in the State for the cultivation of the great staples, and diversified, as the parish is, by woodlands, streams, and prairies, it combines advantages not found in many other States.

The prominent considerations to immigrants are, or should be, its delicious climate and perfect healthfulness, shown by the longevity of the inhabitants, and an immunity from the malarious influence which too often counterbalance fertility of soil in other places in Louisiana. Wealth is too often sought at the expense of ruined constitution, and the demon of malaria is sure to win in the long run. But in St. Landry, as the pamphlet asserts with perfect truth, there is no season in the year that the white man cannot work with perfect safety in the fields. The intense summer heats are tempered by the Gulf breezes, and the colds of winter softened by them.

In fact, at all periods in the history of the parish, white laborers have cultivated the soil. The first settlers of St. Landry were not a few great landed proprietors who, with the "turf hunger" strong within them, bought up every arable acre for miles around their possessions, but small Acadian farmers who only took in enough of land to yield produce for daily wants. Their attention was mostly turned to stock raising.

In fact, looking at these vast rolling prairies, so flattered by the sun into a rich lushness of grass and flowers, so boundless in their distances, we can imagine no place more strongly suggestive of that branch of profitable industry. There are no modern improvement attempts here in stock-raising, but even under the old primitive regime, which leaves the cattle to shift for themselves, the interests of capital invested in this branch yielded 33½ per cent. before the war. We can hardly figure the results should care and attention be turned to the improvement of stock in these, their natural and bountiful meadows.

The crops of the parish last year made a good yield. A ready sale was found by the small farmers for their varied produce. Of three who planted cane on a tolerably large scale, after all the expenses were paid, one cleared \$19,714, another \$30,800, and the third \$25,282—his capital invested being \$40,000. The statements of these gentlemen, all men of high standing, are found embodied in the pamphlet which lies before us.—*New Orleans Times*.

VEGETABLE AND FRUIT TRADE WITH THE NORTHWEST.

Year by year we have urged our readers all along the lines of our railroads to plant orchards of peaches, apples, pears and plums for our own and Northern markets. This and next are the planting months in the South and Southwest, and we call the attention of our cotton-crazed people, who are again bent upon committing financial suicide to the following from a correspondent of the *Prairie Farmer*, who last July took a trip from Iowa to Oxford, Mississippi:

"At Cairo our steamer was detained unloading melons, from Mobile to Chicago; my attention, without this circumstance, would not have been attracted to the great difference at this season of the year of maturity and abundance of the fruits between the South and the North. In Memphis, and at the stopping stations, I saw ripe and excellent apples, peaches and pears, abundant and cheap. I saw Bartlett pears in Memphis, large, perfectly sound and ripe, on the 25th of July; peaches of large size, and superior quality, were abundant everywhere; and apples so plenty, though good, as to be held of no esteem. Yet I did not observe by the railway side more than three apple and one peach orchard between Memphis and Oxford, a distance of over a hundred and twenty miles. A few apple trees now and then about the mansion, and peach trees, 'chances sown by the fountain,' in the fence, corners, and other like places, as if accident was the source from which this abundant supply of fruit came. The people said, we have

peaches from July to October, but your Northern apples are so much better than ours! No marvel thought I. I was born under a Southern sky; but an absence of thirty-five years had changed the man, just as much as the climate has changed the business. The space occupied by my thousand apple trees, planted in various fruits at Oxford, Miss., and cultivated, with Northern taste and industry, would make any man in that country a good income from Chicago every year. Just think of it—peaches, apples, pears, melons, cantelopes, and above all, grapes, in the Chicago market, two months in advance of forty-two degrees; why, if the South could be aroused to the smaller industries, we should have to go out of the business."

Here is a suggestion, that wisely considered, will in a few years yield a rich harvest to the South. We hold that every man who owns a farm, is duty bound to have on it a good orchard of improved fruits. An orchard large enough to supply all of the possible wants of his family, with a surplus sufficient to pay the expense of the orchard.—*Southern Farmer*.

ART. XIX.—DEPARTMENT OF COMMERCE.

TRUCK FARMING.

The limited experiments of growing vegetables for the Northern markets, on the St. Johns river has been so far successful that parties are now extending their operations, and new-comers who have been engaged in the business are preparing to go into it largely. Although we have close connection by steamers to Savannah, Charleston, and thence to New York, yet the time must soon come when direct steamers from Jacksonville to New York will find full freight direct from the St. Johns. Then we may look for a wide spread area of land devoted to the business. Easy culture, early seasons, muck easy of access, and cheap freight for manipulated manures, will leave a wide margin for profits, the market cannot be overstocked, for our vegetables come in from four weeks to four months in advance of other sections. It is no prophecy to say that Florida is destined to be the future garden for semi-tropical fruits and vegetables for the supply of Northern cities.—*Florida Union*.

COTTON SAMPLING AND ITS ABUSES.

We frequently see notices of the arrest of parties charged with stealing cotton from the wharves and elsewhere, and complaints are made that cotton often loses in weight in consequence of depredations before the cotton is delivered to the buyer. This evil has been provided for by the Board of Trade in a series of regulations which we have already published. These new regulations ought to be approved, and strictly observed by all parties connected with the cotton trade. They appear to us, as fully meeting the demand for reformation in this particular, and cannot fail to give satisfaction to the people in the interior. Shippers to this port will now see that both factors and buyers evince a determination to have business in this city conducted correctly, and with a scrupulous regard to the rights and interests of all parties concerned.

We are aware that there exists in the country unfounded prejudice against Mobile, dating back more than a quarter of a century, when the merchants of this city were unjustly assailed by two prominent members in the Legislature—one from Madison county, and the other from Monroe. It is not proper to pander to this prejudice, but when it is manifest that there are evils which can be remedied, it is the duty of the merchants and business men to remove them promptly. The evils alluded to are not confined to Mobile. They exist in New York to a greater extent than here, and are fully as grievous in New Orleans, and

other cotton ports. Their existence in other cities is no plea for not abating them here, and we hope the Board of Trade will not relax their efforts to effect such other reforms and changes as the welfare of the city and justice to those who trade with us may demand. We want *free wharves*, and sooner, or later, we shall, no doubt, have them.

It affords us pleasure, in this connection, to bear testimony to the honorable character of our business men of all classes. For integrity, business capacity, and close attention to the interests of those whom they represent, they will compare favorably with the same class of men in any other city.

Before we conclude this article, we invite attention to the relative charges incidental to the sale of a bale of cotton in several cotton marts. Exclusive of commissions, which are the same in all cities, the expenses, where cotton is stored and insured for fifteen days, are as follows: In New York, \$2 12; New Orleans, \$1 80; Mobile, \$1 67; Savannah, \$1 64, and in Selma, about, \$1 50. This comparison will, no doubt, astonish many of our interior friends, and we submit it for the purpose of disabusing the minds of those who have been told that the charges here are much greater than elsewhere. It will be seen that our port charges are less than in New York, or New Orleans, and only a few cents more than in Savannah and Selma.

All we ask for Mobile is fair play. We do not fear honorable competition. The planters are sagacious, and in this day of newspaper reading, and general intelligence, they will not be humbugged by assertions, unaccompanied with facts. We assail no other market, in the State, or out of it. No restraints can be put upon commerce now, as in former times, when our means of transportation were limited. Trade has outlets in every direction, and it is proper that the planters should seek the best market within their reach; but we have no sympathy with men or newspapers who would build up and support the cities of other States at the expense of the growth, and wealth, of our own State, without any corresponding benefit. The tax-payers of Alabama are interested in the prosperity of every part, and parcel of their own State, inland and seaport.—*Mobile Register*.

SELLING GRAIN IN NEW YORK.

The West has been subjected for a long time to a very expensive delay in obtaining returns for consignments of grain to New York. This grain goes first to Buffalo, where it is shipped on the canal to New York. When it reaches that city it is kept on the canal-boats, and sold by the commission men by the boat-load upon seven to ten days' credit, and at the risk of the consignor. If at any time, before actual delivery, the buyer becomes dissatisfied with his purchase, he can refuse to accept the grain, and it is no uncommon thing for a Western shipper to be advised in the morning that his grain is sold, and in the same afternoon, or the next day, that the sale is "off." The purchasers of this grain are the shippers to the foreign ports, who have hitherto successfully resisted the cash system, and have claimed and enjoyed the benefit of seven to ten days' credit, with the incidental advantage of throwing up a purchase, in case of a decline in the market, or any other cause.

For the want of adequate warehouse and elevating facilities, Western consignors have been unable to bring about any change in this mode of doing business, but recently there has been organized a warehouse and elevating company, which offers to receive the grain on the day of its arrival in New York, and issue receipts therefor. Shippers from New York will purchase these receipts instead of the grain in boats. The commission men, representing the Western consignors, holding the receipts, will be able to sell for cash only, and foreign shippers must purchase the receipts and take all subsequent risks.

A delegation of the New York gentlemen engaged in this enterprise are visiting the Western cities, explaining the means by which Western consignors, by sending their grain direct to store, can hold it at small expense until it is sold for cash. Sales of the warehouse receipts will admit of no backing down, nor any pretext for delay, because the foreign shipper, the moment he purchases the

receipts, can take his vessel to the elevator and get his grain. The Board of Trade of Buffalo promptly responded to this offer, and the Commercial Committee of the Chicago Board of Trade, yesterday, by an unanimous vote, indorsed the action, and reported resolutions which will be acted on by the full board to-day.

The foreign shippers at New York, the men who make purchases and repudiate them at pleasure, and who now enjoy a week or ten days' credit on all they buy, have taken the alarm; and on Thursday endeavored to induce the New York Produce Exchange to protest against this reform. They requested the President of that body to call a meeting to consider the matter, which that officer refused to do. The shippers then held a meeting of their own in the Exchange rooms; appointed one of their own number, Mr. Archibald Baxter, Chairman, and passed resolutions opposing all reform, and denying that there were any evils to be reformed. They protested, therefore, against any favor being given to the new or cash system of doing business. By a vote they requested that these resolutions be forwarded to the West by the President of the Produce Exchange, which request that officer refused; but the proceedings were forwarded by the Associated Press so adroitly that the impression was conveyed that the Produce Exchange, or its officers, had given their sanction to the action of the meeting. The hostility to the reform is confined exclusively to shippers, while every consignor has incurred, and is every day incurring, loss, because of the wholly unnecessary and vexatious credit system prevailing in New York.

If the merchants of the Western cities remain firm in their purpose, and the New York warehouse and elevating companies perform their engagement, this evil will be avoided, and the cash system which works so well elsewhere must become the rule in New York.—*Chicago Tribune*

THE FUR TRADE OF CANADA.

The fur trade of the Dominion is one of considerable importance, and we are pleased to learn from the *Montreal Herald* that, contrary to the general impression, the catch of furs does not decrease with the settlement of the country. A change of the fur produced is all that takes place. Instead of the bear, and the wolf, the mink and the muskrat are caught in the stretches of land opened up by settlement. The animals requiring much cover recede, while the smaller, and more numerous species take their places. There are now in the cultivated portions of Upper and Lower Canada more minks, martens, muskrats, and fishers than there ever were in the most palmy days of the Hurons or the Algonquins. The reason is evident; the larger animals cannot now prey upon the smaller creatures as they once could. The exportation of the most valuable furs has, therefore, increased very much within recent years. Strange as it may appear, it is nevertheless true, that there are more baits set for fur-bearing animals now by white people than there ever were by the original sons of the forest. The professional trapper is aided on all sides by the settler and the lumberman. The most important of the fur-bearing animals of Canada at present is the mink. The skin is small but fine, and costs from \$3 to \$5. It has for some years formed the staple material for ladies' goods, but shows signs of giving way, in favor of South Seal and Persian lamb. The value exported during the past year may be set down at \$200,000. A very large quantity enters into local manufacture. The marten is a skin of similar size to the mink, but of much poorer quality. The ruling price during the last season was \$1 50. The whole product of the country is shipped to Europe. The number of skins caught in Canada may be estimated at sixty to seventy-five thousand, and the value \$80,000. The most abundant animal is the musquash. About one million of these small skins are obtained in a year. The fur, when dyed, is made into ladies' goods, and when exported is used instead of beaver for making beaver and felt hats. The value of the skins here is from 12½ to 20 cents. The fox manages to elude the many traps set for his total destruction, and continues to swell the yearly catch of furs; as many as fifteen to twenty thousand are caught in a year. The price is, however, low—\$1 to \$1 50

The skin is sold to the Greeks, who use it as trimmings for coats. Bears are now only found in outlying settlements, and the catch is comparatively unimportant. Lynx, fisher, otter, skunk, raccoon and badger are all exported in moderate quantities. Of these fisher and otter command the highest price. Beaver is largely used for home manufacture, as well as exported. The price per pound has ruled from \$1 to 1 50. Ladies' goods—capes, muffs, etc., are now being made from this skin when plucked. The business of exporting furs is very speculative. In the case of war, or even rumors of war, luxuries are the first to fall in price, and next to diamonds, furs are the most easily dispensed with. The caprice of fashion may in one month cause a decline in price utterly ruinous to the dealer. It is, however, necessary that some should be engaged in the enterprise, and, as in all other speculative business, there are those who come out of the exporting fur trade with a fortune secured.

COTTON FACTORIES.

It is stated that there are at this time in South Carolina eleven cotton factories in successful operation, running twenty-seven thousand two hundred spindles and nine hundred and ninety-six looms—the largest one, the Kalmia mills having ten thousand spindles and six hundred looms; and the smallest one, the Valley Falls factory, having five hundred spindles.

In Georgia there are in process of erection seventy-two mills for the production of cotton and woolen goods alone, and attention is turned in the direction of the production of calicoes and painted fabrics.

One factory at Augusta has a capital of \$600,000, and last year it turned out nearly six and a half millions yards of cloth.

The Arizona Cotton Factory, established in Claiborne parish since the war, is now paying a net profit of twenty-four per cent per annum. This income is realized on a capital of \$80,000, and with a part of the machinery, counted in the capital, not yet at work. There is not a cotton factory in the South which does not pay well. The Arizona Factory is in the interior of Claiborne, forty or fifty miles from navigation, and among a comparatively poor people. But they are rich in enterprise and labor, and will outstrip in wealth and progress many communities more highly favored by nature.—*Natchitoches Times*.

THE NORTHWESTERN FUR CROP.

A Red River paper says: 'Now that the catch of the early winter is coming in we can form some idea of what the yield of furs is likely to be for the winter. It would appear that, from perhaps the excessive catch of last year, mink are not likely to yield over one-half of the usual numbers. The lynx is caught in far less number than last year. The yield of otter, beavers, martens, rats, fisher and foxes will be about the same as that of last year; while the number of the skins of that pretty, but odorous animal, the skunk, will be largely in excess of last year. The buffalo—erratic always—seemed almost entirely to have deserted us, and the Crows, Blackfeet and Pequas, too, have enjoyed almost a monopoly of their skins; but the latest reports bring the welcome tidings of their continued movements in our direction, so that we may safely predict for the spring trade a still large, if decreased supply.'

WHAT A BOARD OF TRADE CAN DO.

The *Mercury and Floridian* says: 'The Board of Trade, in a quiet way, have effected a great deal of good to our city, its discussions and action on subjects pertaining to commerce, agriculture, and immigration, has stimulated an interest

in the community which has been of great benefit. The Board of Trade incorporated our State Agricultural Association, effected the proposed Government assistance in improving our bar, has collected statistics of trade and commerce, supervised the appointment of pilots, advised in reference to city charters, and by its committees caused reduction of freights. The commercial world always look with favor on the action of official bodies of Boards of Trade, and it is the recognized authority in all matters in reference to the material interests of a community. The Board of Trade of Jacksonville, by persistent efforts, have succeeded in reducing insurance from two and a half to one and a half per cent., a saving of thousands of dollars. We enjoin on all our citizens to become members. Even as a social institution it is desirable, for the rooms are open, its tables filled with the commercial journals of the country, and sociably it is a good place for citizens to gather."

MONTHLY MARKETS.

Compiled from the press of New Orleans and other cities, for DeBow's New Orleans Review.

RECEIPTS PROPER OF COTTON AT THE VARIOUS PORTS DURING THE WEEK ENDING AT THE LATEST DATES AT HAND.

NEW ORLEANS TO 21ST APRIL.

Arrived since the 16th instant, of Louisiana and Mississippi, 6134 bales; Mobile, 609; Florida, 4; Texas, 258. Together, 6995. Cleared since the 16th instant, for Liverpool, 7512; Havre, 5621; Barcelona, 1075; Malaga, 800; New York, 290; Boston, 1738 bales. Together, 16,976 bales. Stock in warehouse and on shipboard not cleared on the 20th instant, 99,946 bales.

We left the market at the time of our last report ruling at $25\frac{1}{4}$ @ $25\frac{1}{2}$ c. for ordinary, $26\frac{1}{2}$ @ $26\frac{1}{2}$ c. for good ordinary, $27\frac{1}{4}$ @ $27\frac{1}{2}$ c. for low middling, $28\frac{1}{4}$ @ $28\frac{1}{2}$ c. for middling, —@ $28\frac{1}{4}$ c. for strict middling, and $29\frac{1}{2}$ @— for good middling.

The receipts at this port since the 1st September, (exclusive of the arrivals from Mobile, Florida, and Texas,) are 745,000 bales, against 563,601 bales to the same date last year, and the decrease in the receipts at all the ports, up to the latest dates, as compared with last year, is 141,878 bales. In the exports from the United States to foreign countries, as compared with last year, there is an increase of 1679 bales to France, and a decrease of 287,903 to Great Britain, and of 20,850 to other foreign ports.

With the remark that our outside figures are, as usual, for strict classification, we modify our quotation as follows:

NEW ORLEANS CLASSIFICATION.

(Assimilating to that of Liverpool.)

Low Ordinary.....	— @—	Strict Middling.....	$23\frac{1}{2}$ @—
Ordinary.....	25 @ $25\frac{1}{2}$	Good Middling.....	$29\frac{1}{2}$ @—
Good Ordinary.....	$26\frac{1}{4}$ @ $26\frac{1}{2}$	Middling Fair.....	nominal.
Low Middling.....	27 @ $27\frac{1}{2}$	Fair.....	nominal.
Middling.....	28 @ $28\frac{1}{4}$		

COMPARATIVE PRICES OF COTTON AT THIS DATE, WITH THE RATE OF FREIGHT TO LIVERPOOL, AND FOREIGN EXCHANGE.

Description.	1869.	1868.	Descriptions.	1868.	1869.
Low Ordinary.....	— @—	— @—	Strict Middling.....	$28\frac{1}{2}$ @—	— @—
Ordinary.....	25 @ $25\frac{1}{2}$	— @—	Good Middling.....	$29\frac{1}{2}$ @—	nominal.
Good Ordinary.....	$26\frac{1}{4}$ @ $26\frac{1}{2}$	29 @ $29\frac{1}{2}$	Middling Fair.....	nominal.	nominal.
Low Middling.....	27 @ $27\frac{1}{2}$	30 @ $30\frac{1}{2}$	Fair.....	nominal.	nominal.
Middling.....	28 @ $28\frac{1}{4}$	31 @ $31\frac{1}{2}$			

Freight to Liverpool..... 1869. 1869.
..... 9-32d @—, | —@ $\frac{1}{4}$ d.

STATEMENT OF COTTON.

Stock on hand September 1, 1868—bales.....	1,259
Arrived during the past three days.....	6,995
Arrived previously.....	767,901—74,896
	776,855
Exported during past three days.....	16,976
Exported previously.....	659,933—676,909
Stock on hand and on shipboard—bales.....	99,946

SUGAR AND MOLASSES—Advices from Cuba state there will probably be a further increase, on the 1st proximo, in the export duty on sugar, of from \$1 37½ to \$2 50 per box; which is equal to 1c. ¢ lb in currency. A corresponding change will be made in the duty on molasses. The stock of Cuba sugar and molasses here is fair, but the demand is limited.

Of the Louisiana product only 24 hhds. sugar and 23 bbls. molasses were received this morning. The demand for sugar is quite fair: Common, 9@10c.; fair 11@12c.; good fair, 12½@12¾c.; fully fair, 13¼c.; prime, 13½c.; choice, 14c. ¢ lb. Of molasses, the little that comes in sells readily; 125 bbls. fermenting sold at 52c. ¢ gallon.

TOBACCO—The market has shown more animation during the past semi-week. The demand however, has been confined principally to lugs and stems, the former probably for the Bremen market. We note sales of 370 hhds. as follows: 50 and 50 hhds. lugs on private terms; 20 hhds., African tobaccos at 15c., 3 low leaf at 9c., 3 good at 13½c., 1 do at 12½c., 1 common at 10c., 6 scraps at 2½c. and 1 235 hhds. stems from the landing at 1¼c. ¢ lb. Prices are firm and unchanged.

	Light.	Heavy.
Refused.....	6@ 7c.	7@ 8c.
Common Leaf.....	8@ 9c.	9@10c.
Medium.....	9@11c.	10@11c.
Good.....	10@11c.	11@12c.
Fine.....	12@14c.	13@15c.
Choice Selections.....	14@15c.	15@19c.

TOBACCO STATEMENT.

Stock on hand September 1, 1868—hhds.....	2,183
Arrived during the past three days.....	785
Arrived previously.....	5,878—6,663
Exports during past three days.....	17
Exported previously.....	2,094
Broken up for baling, city consumption, etc.....	775—2,886
Stock on hand and on shipboard not cleared.....	5,990

(New Orleans Times.)

FLOUR—The market is very dull to-day, although the stock is small, and the business doing is only of a jobbing character. Prices, however, are about the same as at the close yesterday. Superfine is quoted at \$5 70, double extra \$6 12½, treble extra \$6 50@— ¢ bbl.

COFFEE—There has been a good inquiry during the past semi-week and holders ask an advance which, however, has not yet been established. The stock in first hands is very liberal, being about 21,000 bags. Quotations are as follows: (gold duty paid) prime 17 to 17½c., good 16 to 16½c., fair 15 to 15½c., ordinary 14 to 14½c. ¢ lb. Imports during the past three days 4200 bags from Rio de Janeiro.

FRUIT—Green Fruit is in fair supply and demand. We quote from first hands \$5 ¢ box for Lemons, \$3 50 to \$3 75 for Palermo and \$4 to 4 25 for Messina Oranges. There is only a small jobbing and retail business doing in Dry Fruit. We quote Layer Raisins \$3 60 ¢ box; 13 to 14c. ¢ lb for Currents; 25c. ¢ lb for soft shell Almonds; 14 to 15c. ¢ lb for Prunes, and 20 to 21c. for Figs. Dried Apples are scarce and firm at 11 to 12c.; Dried Peaches 13 to 14c. ¢ lb.

CATTLE.

Texas Beeves, corn fed, first quality ¢ lb net.....	10 to 14c.
Texas Beeves, corn fed, second quality, ¢ head.....	\$ 35 to 50
Texas Beeves, first quality, ¢ head.....	\$ 45 to 50
Texas Cattle, second quality, ¢ head.....	\$ 30 to 35
Texas Cattle third quality, ¢ head.....	\$ 18 to 25
Sheep, first quality, ¢ head.....	\$ 5 to 8
Sheep, second quality, ¢ head.....	\$2 50 to 3 50
Sheep, third quality, ¢ head.....	— to 1 50
Milch Cows, choice, ¢ head.....	\$ 80 to 120
Milch Cows, ¢ head.....	\$ 50 to —
Texas Cows with calves.....	— to —
Yearlings ¢ h ad.....	\$ 6 to 10
Calves ¢ head.....	\$ 6 to 10

EDITORIAL.

Our Exchanges will please change our address to New Orleans.

BOOKS, CIRCULARS, ETC., RECEIVED.—To Hon. James Brooks, of New York, for a copy of his speech delivered in the House of Representatives, December, 1868, on the Tariff.

To Hamilton Hill, Esq., Secretary of the National Board of Trade, for report of Senate of Massachusetts on Depression of Commerce.

To James Parton, Esq., for the "The Danish Islands: Are we Bound in Honor to Pay for Them."

We are under obligations to Hon. J. H. Sypher for a great variety of garden seed.

To Robert Clarke & Co., publishers, booksellers and stationers, 65 West Fourth street, Cincinnati, Ohio, for a copy of the "Public Debt, What to do With It?" by Hon. Henry Reed. I am sure we don't know.

To Thomas M. Monroe, Esq., of Dubuque, Iowa, for his speech before the National Board of Trade, December, 1868, in the city of Cincinnati, on the subject of continuous water communication between the Valley of the Mississippi and the Atlantic seaboard. From this able and elaborate document we propose to make extracts in a future number of the REVIEW.

We are under obligations to Mr. Jas. S. Gresham, No. 92 Camp street, for Lloyd's Topographical Map of North America, edition of 1868. We regard this as one of the best and most authentic charts now before the public. Based upon an accurate knowledge of railroad progress in the United States, the topography is particularly excellent. We are especially interested in the delineation of the Isthmus, Islands, and South American States, which accompany the map and make it a good chart of the whole American continent.

ERRATUM.—On page 138, in the February number of the REVIEW, a typographical error in the letter of L. J. Higby, Esq., did injustice to the grain elevator of this city. The text reads: "Ships loading and unloading at the elevator wharf are taxed with port charges." It should read, "are *not* taxed with port charges."

All persons who were indebted to DEBOW'S REVIEW before the war to an amount not exceeding ten dollars, will receive a receipt for the same on subscribing and paying in advance for the REVIEW for one year, commencing with the date of such receipt.

Our country subscribers will find it alike safe, and convenient to remit by post-office orders. There are certain postoffices which are authorized to receive money on orders. They are not very numerous, but may be easily reached from any part of the Southern States. This process of remittance is very simple: the

depositor applies to the Postmaster for a money order; the Postmaster fills it up and forwards it to the New Orleans office. It is there paid to the order of the REVIEW, and thus furnishes a receipt, and a witness of the transaction. If the order miscarry, it will be duplicated by the Postmaster, so that there can be no loss. Our subscribers will thus see a means of remitting us their dues, and we have no objection to their making a reasonable deduction if they wish from the amount due us. We should have to incur the expense of a special collector to reach them. This would cost us a good part of these subscriptions. It is, therefore, as well for us to pay a part of the commission, to the subscribers if they request it. The summer season is now coming on, when our receipts from the Southern country decline, because of the inconvenience of remitting. Yet we need money as much, or more, at that season, than at any other. Therefore, our subscribers will please send their dues throughout the summer. We have examined the names of offices authorized to remit in a few of the Southern States, and may add, that while Texas has but four, and Louisiana but nine such offices, Iowa has seventy-six.

THE THROUGH GRAIN MOVEMENT AND THE CHICAGO TIMES.—We are under obligations to the St. Louis *Democrat* for its efficient vindication of our efforts to help the river trade in bulk grain. It says:

Ever since the diversion of the grain carrying trade has begun to take a real shape, the Chicago *Times* has, every now and again, manifested more or less uneasiness thereat, and has given currency to sundry manifestoes against the whole business. It may be a matter of wonderment, in view of the immense influence of the *Times*, how the enterprise should have so steadily thriven in spite of its decrees to the contrary. It may be more a matter of wonderment that this dignified newspaper does not perceive in writing down this movement it is "whistling against the wind" and "dry up." Here is its latest ukase on the subject:

DE BOW'S REVIEW, published in New Orleans, is making no small effort to secure for the Crescent city, the grain trade of the northwest. The object is a worthy one; but there is one insuperable objection, to-wit: Chicago. Until Chicago can be removed, the publication of cuts representing the single elevator at St. Louis, and another at New Orleans, will not carry the grain trade of the Northwest down the Mississippi.

"If New Orleans wishes to flourish, let it take charge of the cotton and sugar of the Mississippi valley. Herein lies its forte. Its attempt to control the grain of these high latitudes is as unnatural as would be an effort on the part of Chicago to bid for the rice, cotton, and sugar of the Gulf States. The publication of a cut of a cotton press in Chicago would not bring cotton hither; the same result will attend DE BOW'S REVIEW in its pictorial effort to induce grain to follow down the muddy currents of the Mississippi, New Orleans can never become a grain depot beyond an amount needed to provision the cotton and sugar districts dependent upon it for supply. It can and should be made a port of entry for tropical production of all sorts. It is nearer the West Indies than New York. It can and should afford the Mississippi Valley all its West Indian products. But grain beyond the amount needed for actual consumption, cannot go South. It must move along the latitude of its growth."

In view of the fact that grain beyond the amount needed for actual consumption does go South—in view of the fact that Higby has received into his elevator at New Orleans nearly half a million bushels of grain for exportation to Liverpool, Scotland, France, and Spain in cargoes upon orders—and in view of the fact that there is a steady flow of wheat in bulk to this city from Illinois, and from this city southward for export, we think it may be safely stated that more grain than is needed for consumption can go South.

The *Times* is mistaken in saying that Chicago constitutes an insuperable obstacle to this route. There was a time when there was no Chicago. Yet New Orleans never received or shipped grain in bulk. There was a greater obstacle than Chicago. It was the want of proper facilities for transfer—it was the want of experimental conviction that grain can be shipped by this route without climatic injury. What will the *Times* say when we reply, in all sincerity, that we value Chicago too highly to have it removed. Falstaff asked: "Will I lose my Parson Hugh? He teaches me the proverbs and the no verbs. Shall I lose my bully Doctor? He gives me the potions and the motions." So we can neither afford to lose St. Louis nor Chicago. There is room enough, and trade enough, for each and for both, were their population and capital increased ten-fold. So we say to Chicago, as the Apostle said to the jailor, when the latter was about to commit suicide, "do thyself no harm, we are all here." The *Times* ridicules our pictorial efforts. It feels hurt that we have not done justice to a great commercial centre of the Northwest. We will appease him by giving at least a pen picture: We would present a view of her long streets of beautiful, substantial buildings. We would picture her meat markets, and her fruit markets; her immense elevators, and railroad depots, and her miles of wharves. Then we would depict her ice blockade, which endures for four months. We would show nearly one-third of the whole shipping frozen fast in the inexorable lake. Then would be seen the thousands of idle sailors; then the mountains of flour, wheat, pork, locked up, while the railroad companies raise their freights upon the necessities of the city. We would have at least one other engraving. It should be the Corn Exchange. *Time, winter. Scene, an immense room, with marble tables arranged in lines and aisles, upon these tables samples of grain.*—The room is crowded with well dressed merchants examining grain samples with all the eagerness of poultry. Suddenly a voice is heard from on high—it proclaims the corn rates of the whole world. Then the crowd buys, sells, and chaffers. Then a gong sounds, and the crowd disperses. It is said that A has gained thousands, and B lost just as much, and that the rest of the alphabet stands just where they were. In the meantime there is no more grain nor money in Chicago than there was the day before, but Chicago has lost another day's work of the idle hundreds who have been swapping corn on credit. These same men, engaged in any productive pursuit which would add to the value of Chicago, would become public benefactors. As it is, the grain trade in Chicago is a good deal like the game of keno in the city of New Orleans. It only decides who shall have what money is exhibited, but does not add one cent to existing values. New Orleans is the deliverer of Chicago from the ice embargo. Instead of being locked up and occupying her merchants during the long winter with throwing high-dice for the price until the spring comes, Chicago will run more railroads to the Mississippi and flank the expectant extortioners on the Eastern railroads by shipping her grain through New Orleans. There is a commercial destiny for Chicago, so high, and so attractive that we cannot put it in a cursory paragraph. In our next number we shall publish a deliberate exposition of the immense advantages of a connection between Chicago and New Orleans, and this great object we anticipate the co-operation of all able and patriotic papers like the *Chicago Times*.